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The Western Naturalist

Volume One 1972

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A Journal of Scottish Natural History

THE WESTERN NATURALIST

A Journal of Scottish Natural History

Editorial Committee:

Dr. J.A. Gibson, Dr. John Hamilton
Dr. J.C. Smyth, Mr. J. Ian Waddington

DEPARTMENT OF BIOLOGY, PAISLEY COLLEGE OF TECHNOLOGY,
HIGH STREET, PAISLEY

The *Western Naturalist* is an independent journal, published by the Renfrewshire Natural History Society, devoted to the study of Scottish natural history, particularly, but not exclusively, to the natural history of the Western area. Although its main interests will probably centre on fauna and flora it is prepared to publish articles on the many aspects embraced by its title including Zoology, Botany, History, Environment, Geology, Archaeology, Geography etc.

All articles and notes for publication, books for review etc, should be sent to the Editors at the DEPARTMENT OF BIOLOGY, PAISLEY COLLEGE OF TECHNOLOGY, HIGH STREET, PAISLEY.

Contributions should be clearly written; whenever possible they should be typed, double-spaced, on one side of the paper, with adequate margins, and should try to conform to the general style and arrangement of articles and notes in the current number of the journal. Maps, diagrams and graphs should be drawn in black ink on white unlined paper. Photographs should be on glossy paper. Proofs of all articles will be sent to authors and should be returned without delay.

Authors of articles, but not of short notes, will receive thirty reprints in covers free of charge. Additional copies may be ordered, at cost, when the proofs are returned.

The *Western Naturalist* will be published at least twice a year and more often as required. The annual subscription is two pounds, which should be sent to the Editors at FOREMOUNT HOUSE, KILBARCHAN, RENFREWSHIRE. Members of the Renfrewshire Natural History Society will receive the journal free of charge. Members of other recognised natural history organisations may receive the *Western Naturalist* at a greatly reduced subscription; for details apply to the Editors at the subscription address.

NATURAL HIST

THE WESTERN NATURALIST

Volume One December 1972

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Published by

THE RENFREWSHIRE NATURAL HISTORY SOCIETY

(Founded 1847)

FOREWARD

The Rt.Hon. Viscount Muirshiel, C.H., C.M.G.

Lord Lieutenant of the County of Renfrewshire
Honorary President of the Renfrewshire Natural History Society

One hundred and twenty five years of continuous existence are well worth celebrating, and the Renfrewshire Natural History Society has decided on a most public spirited form of celebration. Over the years the Society has observed, studied and recorded the natural history and antiquities of our County, a county rich indeed in every aspect of the Society's terms of reference. Now it is undertaking an even wider service.

The production of a new Journal with a larger catchment area than that of Renfrewshire alone is brave and timely, and the name the *Western Naturalist* indicates the range of its prospective coverage.

Our warmest congratulations must go to the Society and its President, Dr. J.A. Gibson, for a splendid initiative based, as I know well, on much careful thought and planning. The enthusiasm and experience of the Editorial Committee guarantees the quality of the *Western Naturalist*. Its long term success must depend on the widest possible support of subscribers and contributors. I sincerely hope that this new journal will be welcomed AND bought not only by those who are already knowledgeable or expert in the subjects with which it will deal, but also by that increasing band of amateurs who, as one can see any weekend, are rapidly discovering the fascination of natural history in all its aspects.

I wish the *Western Naturalist* every possible success.

EDITORIAL

The Renfrewshire Natural History Society is the oldest Natural History and Antiquarian Society in the West of Scotland. It was founded by the late Morris Young, F.E.S., on 18th December 1847, has continued in a direct and unbroken line ever since, and is now one of the oldest county learned societies in Great Britain. This year (1972) it celebrates its 125th anniversary.

There are many local societies in the west, and most have their own publications of one kind or another; several societies, such as our own in Renfrewshire, already have long series of Transactions to their credit, and there is at least one local journal, the *Glasgow Naturalist* published by the Andersonian Naturalists of Glasgow, which has a long and extremely distinguished history. It may therefore be pertinent to ask why a new natural history journal should be considered necessary, but in fact all existing publications share one common disadvantage, that they appear at very irregular and infrequent intervals; moreover, the cost of printing nowadays is such that local journals, on grounds of expense alone, frequently have to refuse many of the short notes on local natural history which in the past so often gave a distinctive flavour to local publications, and are so full of interest in later years. Anyone who doubts this should look at the twenty volumes of the *Annals of Scottish Natural History* published between 1892 and 1911, a series of volumes which has never been surpassed by any equivalent journal anywhere in the world. To this day one of the most valuable parts of the *Annals* is still its large number of notes and short papers, even although many of these had an extremely restricted local application at the time of publication.

In some quarters, therefore, it has long been felt that an independent journal of general natural history was badly needed; one which would appear promptly and regularly at known times, and to which any naturalist would be welcome to contribute material. The suspension of the late lamented *Scottish Naturalist* at the end of 1964 was a very serious blow to Scottish natural history; never has it been more true that if a journal exists where observers can publish their notes and papers then these notes and papers will tend to be written, and that if no journal exists then many of these observations will almost certainly be lost for all time.

For some time now the Renfrewshire Society has felt that it should recognise its position as the oldest natural history society in the west by giving a lead in this matter, and in any case it had long been considering the issue of a new series of Transactions. It has therefore been decided to combine these

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two worthy aims, and to celebrate the Society's 125th anniversary by sponsoring a new independent natural history journal - the *Western Naturalist*.

This new journal will cover all aspects of the natural history, history, archaeology and antiquities of the western district, and will include original papers and notes, society news, requests for information, reviews, editorial comment etc. Its boundaries will be generously defined and should be regarded as centering on, but not necessarily restricted to, the western area. We will not hesitate to go outwith our immediate area to publish some important contribution if the alternative means that it might not get published at all. Although the *Western Naturalist* is being published by the Renfrewshire Society, whose intended new series of Transactions it now replaces, it will be an independent journal which will accept contributions for publication from members and non-members alike; moreover, it will be separately financed, and as far as possible these finances have been guaranteed ahead for at least the next five years. This is a great blessing, which frees the Editors from almost all worries about expense and allows them to consider contributions on their merits alone. Thus we hope to publish important articles in very narrow specialities as well as in more popular fields, and should also have plenty of room for shorter notes of lesser importance or more locally restricted interest.

In this respect it is worth quoting from an editorial in the *Scottish Naturalist* for 1951, when that much loved and highly respected journal was struggling through one of its regular financial crises: "Is it possible, without loss of scientific prestige, to secure contributions of wider or more general interest and appeal? Here the answer is that there must always be differences between one article and another; some make straight-forward reading, others are valuable as works of reference; some are about ever-popular birds, others contain lists of obscure creatures whose very existence is known only to specialists ..... To alter the scope would inevitably be to narrow it, and it would be those very branches of natural history, which are not adequately catered for elsewhere, which would suffer most". These admirable precepts we shall endeavour to follow.

During the past year some indication of the Society's intent has been given to other organisations throughout the West of Scotland, and the Council is extremely gratified at the amount of interest and goodwill which has already been shown, particularly by our neighbouring natural history societies. Even before publication commences we have an advance subscription list of over 300, and this volume contains contributions

from seven societies and organisations throughout the West quite apart from the Renfrewshire Society itself. All this is extremely encouraging and does seem to indicate that the Society was correct in its assumption that such a journal was badly needed. We hope to offer a service to all naturalists, and we shall be only too glad to print material from other societies, especially from those with no established journal of their own, or one which is temporarily suspended. The advantages of a journal which circulates widely to all naturalists throughout an area, rather than to the members of one particular society, are very obvious, and on this point we should say that the *Western Naturalist* will go free of charge to members of the Renfrewshire Society, and at a greatly reduced subscription to members of all other societies, although the exact details have still to be finalised.

The first number of the new journal is appearing as a single volume, being published on 18th December 1972 to mark the Society's 125th anniversary, but from now on the *Western Naturalist* will appear at least twice a year, in spring and in autumn, and ultimately we hope to aim for quarterly production. This of course will depend on the supply of material suitable for publication, and we are now very much open to receive contributions. All items for publication should be sent to the Editors at the Department of Biology, Paisley College of Technology, High Street, Paisley.

This first issue contains a good mixture of subject matter, although oddly enough the 'ever-popular birds' of the *Scottish Naturalist* editorial are less well represented; this is largely a matter of chance and several bird papers are already in the hands of the Editors for future publication, so the balance will quickly be corrected. Also in this first issue individual papers predominate and short notes are few. This too is partly a matter of chance and is probably inevitable in the initial stages of a new journal. As we indicated earlier in this editorial, short notes often have an immediate interest not always found in larger or more important contributions and, moreover, they certainly ease the editorial task of balancing each issue of the journal. When naturalists realise that we are perfectly willing to print short notes of local or even transient interest we trust that a steady supply will be forthcoming.

It is therefore the earnest hope of the Editors that the existence of a new scientific journal covering the western district (or further afield if required), which appears regularly and is able to publish papers and notes promptly, will greatly stimulate the study of all aspects of natural history throughout the West. If it succeeds it will be a tribute to the enthusiasm of Scottish naturalists, as well as to the Ren-

frewshire Society and the editorial committee who have had the confidence to back their judgement with a large amount of their own time and money.

The Renfrewshire Society has invited the following committee to edit the new journal:

Dr. J.A. Gibson (Editor), Chairman, Clyde Area Branch, Scottish Wildlife Trust.

Dr. John Hamilton, Lecturer in Geology, Paisley College of Technology.

Dr. J.C. Smyth, Head of the Department of Biology, Paisley College of Technology.

Mr. J. Ian Waddington, Director, Clyde River Purification Board.

All the members of this editorial committee are also members of Council of the Renfrewshire Natural History Society, but in addition an advisory panel of experts, many of whom have no direct connection with the Renfrewshire Society, has been appointed, and all have most willingly agreed to vet articles in their particular subjects.

We thank our many friends amongst the naturalists of the west for the numerous expressions of goodwill and encouragement which have already been received, and we trust that the *Western Naturalist* will prove worthy of their confidence and support.

Paisley December 1972.

THE WILD GOATS OF THE CLYDE AREA

By J.A. GIBSON
Chairman, Clyde Area Branch, Scottish Wildlife Trust

Herds of Wild Goats, presumably originally descended from domestic Goats which escaped or were abandoned, have long been a feature of West of Scotland natural history. These herds usually inhabit the wilder and more mountainous parts of the area, including the islands, and in my opinion considerably add to the charm and interest of the territory they frequent. Some of these herds are semi-tame and easily approachable, but others are very wild and are extremely adept at concealing themselves, so that one may have to search for a considerable time to get a sight of a herd which is known to be present. I suspect this has led to the false reports one occasionally hears of Goats being extinct in some particular part of their range.

Although originally descended from domestic stock, some of these herds are of very considerable antiquity, and in their history certainly ante-date some introduced species, eg. Rabbit and Brown Rat, which have long been regarded as part of our wild fauna; as such I feel that these herds of feral Goats now have a perfect right to be regarded as part of the *ferae naturae* of the British Isles.

Fraser Darling (1937) said that the reversion of domestic Goats to wild type was rapid and that "ten years can make a big difference in the general appearance of a herd. What, it might be asked, is the influence on nitrogen metabolism which makes feral goats run increasingly to hair and horns until the standard of the wild goat is reached? Natural selection must be a potent factor in levelling the type of goats newly gone feral". The apparent population stability of these isolated herds is another interesting feature; domestic Goats occasionally get free and join some of these feral herds, but other herds which are totally isolated, such as some on the islands, appear to maintain a steady population over many years without any new stock being introduced. To the best of my knowledge this is an aspect of Goat natural history to which little attention has been paid, but which would certainly repay close study. Darling (1937) felt that the "early breeding season serves as an extremely fine mesh sieve in preserving only those which suit the conditions", although he had no figures on actual kid-rearing percentage in 'wild' Goats.

Little seems to have been written about these herds of Goats, although many naturalists are aware of their existence and are genuinely glad to see them as an interesting addition

to the local fauna. Alston (1880) and Boyd Watt (1905) made no mention of feral Goats in their surveys of Clyde mammals, and their omission was presumably deliberate. Buchanan Smith (1932) and Boyd Watt (1937) gave brief summaries of Wild Goats in Scotland, but both appear to have had little up-to-date information from the West of Scotland, particularly the Clyde area. In my paper on Clyde mammals (Gibson, 1954) I gave a summary of the Goat herds known to me at that time, and to the best of my knowledge this remains the only sizeable contribution to our knowledge of the distribution of Clyde Goats.

During the past twenty years, however, I have paid close attention to all herds of feral Goats within the Clyde area. I have visited all known sites, past and present, many times, and during the past two years I have revisited and counted all the herds at present known to be in existence. This paper is based on my own observations and on what I have been able to discover from a search of the previous literature, and as such I hope it fills a gap in our knowledge of Clyde mammals. Goats escape and go wild very easily, and although they sometimes live in the wild state for some years without necessarily establishing any feral breeding stock, it may be that there are other small herds in the Clyde which are unknown to me; if so, I shall be extremely grateful to anyone who can add to the information contained in the following notes.

1. MULL OF KINTYRE:

In the late 18th and early 19th centuries Goats were imported in large numbers from Ireland to Scotland by way of Kintyre, and even towards the end of last century it was not uncommon to see Irish goat-herds driving their Goats north through the Kintyre peninsula. The late Dugald Macintyre recollected as a boy "buying a nice kid for 2/6d" (*Scotsman*, 6th June 1936). Many of these Irish Goats escaped, and the large and scattered herd of Goats on the Mull of Kintyre certainly derives some of its origin from this early importation. The Goats range widely over some ten miles of coastline from Ballygroggan south of Machrihanish to Borgadelmore Point near the Mull. They habitually inhabit the sloping ground near the cliff tops, are seldom found more than a mile inland from the edge, and many are often seen in the neighbourhood of the lighthouse. The present size of the herd is a little under a hundred beasts, and all are multi-coloured. There are no pure white or pure black Goats at present, although one or two black ones were present until about ten years ago. Dugald Macintyre suggested that the original colour of the Kintyre Wild Goats may have been white, but there seems to be little or no evidence to support this, and there is no written record of any white Goats having been seen in the area during the past hundred years.

From time to time action has been taken against the Mull Goats by various local proprietors who were concerned about encroachment upon grazing land, and in the early part of this century the Duke of Argyll's chamberlain issued an order that the Mull of Kintyre Goats were to be exterminated by shooting. They were certainly considerably reduced at that time, but the population slowly built up again and the subsequent increase in their numbers was assisted by escapes from domestic stock. Round about 1920 Mr. John McMillan of the hill-farm of Mingary liberated four Goats, including a pure black billy-goat, which was presumably the origin of the black ones found until recently.

Some years ago Mr. Duncan Colville of Machrihanish was able to examine a large collection of farm leases in south Kintyre, granted by the Duke of Argyll in the 18th and 19th centuries. These leases are now preserved at Inveraray Castle. Mr. Colville noted an interesting condition inserted in many of these leases, that no Goats were allowed to be kept on the farms under a penalty of ten shillings per annum for each Goat kept where this rule was not observed. Mr. Colville noted eighty-three farms, some coastal, others inland, where this condition was apparently enforced in the years from 1751 to 1857, but it may have been in force long before 1751.

These Mull of Kintyre Goats are fairly wild and are not usually easily approached; this is probably the result of occasional shooting. In 1972 I counted ninety-four Goats, mostly in three main herds; this has been the approximate size of the population for the past ten years.

2. LARGIEBAAN, Kintyre:

Goats have inhabited the caves on the west side of the Mull of Kintyre, in particular at Largiebaan, for centuries. There does appear to be some indication that the Goats in the Largiebaan caves lead an existence in some way separate from the main herd on the Mull of Kintyre, and on many occasions I have seen a small herd in or near the caves when the main herd was several miles away. At any rate, it certainly merits a separate description.

At present these Goats are all multi-coloured, as one would expect, since even if their existence is in some way separate, some intermingling of stock with the main herd must take place. Dugald Macintyre recorded that "The caves of the Mull of Kintyre and particularly the Largybhan Cave, have their floors covered with a sheet of goats' dung quite two inches deep. This dried goats' dung makes splendid fuel. It can be raised in sheets, and I once spent quite a comfortable night in the cave, warmed by a huge goat-dung fire, which gave out an intense heat" (*Oban Times*, 8th January 1949). This is still the case;

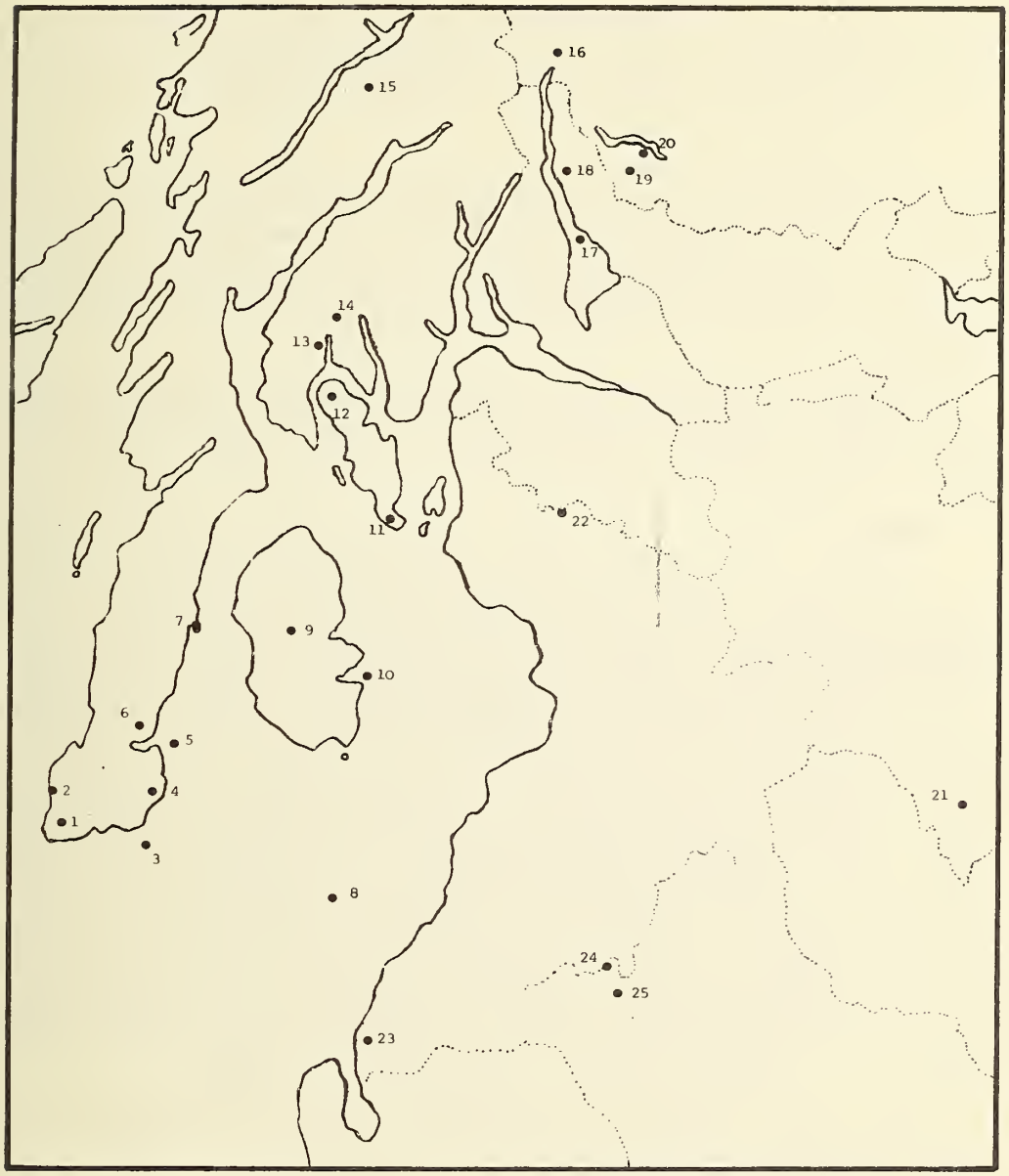

Fig. 1

Wild Goat Herds in Clyde Area

(Numbered as in text)

I too have spent a night in the cave warmed by a similar fire, and the layer of Goats' dung on the floor of the cave is certainly three or four inches deep in places, which clearly indicates the deposits of ages.

In much of his writings Macintyre suggested that "from ancient information (which may or may not be correct)" these Goats were the original Goats of the Mull and may have been pure white in colour until they got mixed with imported Irish Goats escaping; but as to whether there is any truth in this must be entirely conjectural. There are certainly no white Goats there nowadays.

During the past ten years the size of this herd has been from sixteen to twenty-four animals; I counted twenty Goats in 1972.

3. SANDA:

Recently, when reading Lord Archibald Campbell's book *Records of Argyll* (1885), I came across the following interesting passage (page 224): "From the time Sanda and his son were slain at Dunaverty [July 1647], down to the Restoration, the estate of Sanda was possessed by the Campbells. The Marquis of Argyll having suffered on the scaffold, and the interest of the Campbells being then low, Ronald MacDonald, being then a lad of about fifteen, succeeded in obtaining charters of some of his lands. The estate of Sanda was sold by Archibald MacDonald. A part of it - namely, Sanda proper and Gartnacopaig, ... was possessed for some years by Sir William Cunningham of Fairlie and Robertland, who stocked the island with fallow-deer, stags, and roes, together with a large breed of white goats from Ireland". As far as I can trace, this is the only record of Goats on the Island of Sanda; indeed, it appears to be the earliest reference to Goats anywhere in Kintyre, and may well be the origin of the 'legend' of the Kintyre white Goats.

There are no Goats on Sanda now, nor have there been any during the past hundred years.

4. LEARSIDE, Kintyre:

This is the local name for the south-east coastal fringe of Kintyre, extending for about seven miles from Kildalloig to Macharioch. For many years there was a small herd of Goats in this area which was quite separate from the main herd on the Mull of Kintyre. The origin of this Learside herd is unknown to me, but it was presumably derived from domestic stock escaping from the local farms. On 2nd January 1931 a shooting party saw a dozen Goats there and shot three billies and two nannies in the neighbourhood of Feochaig Farm and Glenehervie Farm.

Others have been shot since then, and to the best of my knowledge this herd was exterminated in the early 1940s. There are no Goats there nowadays.

5. DAVAAR:

Goats were introduced to Davaar many years ago. The exact time is unknown, but they were certainly present in the middle of last century, and Mr. Duncan Colville of Machrihanish has the mounted head of a dark-coloured billy which was shot there in 1872. Sheep were grazed on Davaar Island and apparently Goats were introduced to prevent the sheep from being tempted on to dangerous ledges. This was a belief held in many places throughout the West of Scotland where Goats were introduced. The last Campbell owner of the estate, Miss Moira Campbell of Kildalloig, who is still alive and resident in Campbeltown, sold the estate in 1925, at which time the number of Goats regarded as being necessary for this purpose was about fifteen, any excess over that number usually being reduced by shooting.

Since 1925 there have been at least five different owners of Davaar, and a few years ago the 'original' Davaar Goats were all exterminated. Recently, however, Goats were again introduced to Davaar, and a small herd was built up.

The Goat's head shot at Davaar in 1872, which Mr. Colville bought when the Gardner family sold South Park House, has horns measuring 24 inches round the curves, 24½ inches tip to tip, and 7½ inches at the base. Other specimens shot on Davaar up to 1930 have had horns much smaller in size. On 30th August 1928 there were twenty-two Goats on the island, and one large billy, a white one, fell over the cliff on to the seashore, where it was later examined by Mr. Colville. This is apparently the last record of any white Goat on Davaar; the present stock is all multi-coloured.

In 1972 the size of the herd was twenty animals.

6. KNOCK, Kintyre:

Knock hill is situated about a mile to the north-east of Campbeltown, and around the turn of the century a small flock of about half-a-dozen Goats used to frequent the steep hill-slopes overlooking Knockruan Loch. This area was the property of the Duke of Argyll, and the Goats were maintained there presumably to prevent the sheep from grazing in dangerous places. When Mr. Colville was a boy he used to fish Knockruan Loch for trout, and one evening in the 1890s he was fishing in the dusk along the edge of the loch, which at that time was enclosed by a wire fence to prevent live-stock from polluting the water,

which was used for domestic purposes in Campbeltown. In the darkness he heard a mysterious animal endeavouring to get through the fence. This turned out to be a Goat, and as he approached the fence it suddenly turned and entered the water in panic. It swam out about eighty yards, started snorting, and then went round in circles, and was finally drowned, in spite of Mr. Colville's efforts to get out of its way as quickly as possible.

The time when this herd of Goats was established near Knockruan is not known, but apparently it had died out or had been exterminated before the first World War. There are no Goats in this area nowadays.

7. CARRADALE:

On Carradale Point there is a herd of some thirty pure-white Goats. These Goats are apparently descended from Saanen stock, and to my personal knowledge and observation have bred true for the past thirty years and presumably for much longer. This herd has a fairly ancient history, and references can be traced back for well over one hundred years. There is a local tale that this herd is descended from Goats which got ashore from a ship wrecked on the point in the early part of last century, but whether there is any truth in the story I cannot say. One hears a similar tale in many places throughout the West of Scotland, and there is apparently a widespread belief that many Goat herds in the West are descended from Goats carried on wrecked galleons of the Spanish Armada.

Although quite feral the herd is only semi-wild and can be approached and observed without much difficulty. One occasionally sees statements to the effect that this herd has had stock added to it over the years, but these statements do not appear to be correct. Carradale Point is part of Carradale Estate which is owned by the Mitchison family, and Lady Naomi Mitchison tells me that no fresh blood has been added to the herd since 1937, the date when the estate came into the possession of the family. One attempt was made to introduce a young kid of different stock, but this was unsuccessful and the kid died. There is good reason to believe that this herd has remained entirely untouched for at least the last fifty years. From time to time white Goats from this herd have been sent to other places, however, which might account for some of the rumours of interchanging of stock.

During the past twenty-five years the size of the Carradale herd has remained remarkably steady around the thirty mark, and this year (1972) there were twenty-nine Goats in the herd.

8. AILSA CRAIG:

The colony of Goats on Ailsa was of very considerable antiquity. As with other herds, the Ailsa Goats were presumably descended from domestic Goats gone feral, but when they were introduced to Ailsa is no longer known. When Pennant wrote of his visit to Ailsa in 1772, he said "the quadrupeds that inhabit this rock are goats and rabbets"; the Goats were obviously wild and clearly had already been there for a considerable time; the *Old Statistical Account* (1791) also mentions Rabbits and Goats on Ailsa.

As to why Goats were ever taken to Ailsa at all is also not clear. Ailsa never seems to have been inhabited in olden times, was obviously still uninhabited at the time of Pennant's visit, and the *Old Statistical Account* said that Ailsa was "not inhabited by any human creature". Ailsa did have tenants, however; both Pennant and the *Old Statistical Account* recorded that the Earl of Cassillis rented the Craig to "people who come here to take the young gannets for the table; and the other birds for the sake of their feathers ..... and the rabbit skins". The tenants had no permanent residence on Ailsa, although when harvesting the birds and Rabbits they would clearly stay there for some weeks at a time, and Pennant describes the remains of some bothies. It is very likely that the tenants took some milking Goats to the Craig to give a supply of fresh milk, but even if these Goats escaped they obviously could not have established a herd. All the indications are that Goats had existed on Ailsa throughout the ages, and the original reasons for their introduction are now lost.

These Goats were certainly a well-known feature of Ailsa and about 1836 the tenant of the Craig "went there for a few day's shooting at the Wild Goats which abound"; in 1902 there were nearly fifty beasts, in 1926 there were over sixty, and in 1932 'nearly eighty' were counted; in 1935 Messrs Rowland Ward received the head of an Ailsa Wild Goat for preservation.

In the early 1930s the Girvan family, tenants of Ailsa since the mid-19th century, introduced domestic Goats to Ailsa for milking purposes. The wild Goats were found to be interfering with the domestic herd and steps were taken to reduce the numbers of the wild Goats by shooting. Contrary to some reports, however, they were not all shot out at once, and six or seven were still present in the early 1940s; these were mostly very old billies, however, which soon died, and the last 'wild' Goat I saw on Ailsa was in 1944.

When the Girvan family gave up permanent residence on Ailsa in the late 1950s a few of their domestic Goats got free on the hill and bred successfully for some years. In 1964 there were

certainly a dozen animals in this small herd, and since some of the wild Goats had inter-bred with the tame herd on several occasions this possibly meant that the original strain of Ailsa Goats had not been entirely lost. They became considerably reduced in numbers shortly after this for no apparent reason, but it is quite likely that some were shot. In 1968 only one or two were present, and since then a detailed search on several occasions has revealed no evidence of any Goats on Ailsa, so they now seem to have completely died out.

The Wild Goats of Ailsa led a separate existence for at least two centuries and possibly much longer, and as such had the longest continuous yet discrete pedigree of any herd of Goats in the West of Scotland; it is perhaps a pity that a herd with such an ancient history has come to an end.

9. ARRAN:

When Thomas Pennant (1772) visited Arran he made many references to Goats, but it is clear that all of these were domestic Goats. When he gives a list of the mammals of Arran he says "the quadrupeds are very few: only otters, wild cats, shrew mice, rabbets and bats: the stags which used to abound, are now reduced to about a dozen"; he makes no mention of Wild Goats. It is obvious from his report that domestic Goats were common on Arran, and there are several references to the apparently beneficial effects of drinking Goat's milk, e.g. "in summer the air is remarkably salubrious, and many invalids resort here on that account, and to drink the whey of goats milk". This was a widely held belief in many parts of the country at that time, and it would seem that Goat husbandry along these lines was a main industry on Arran; indeed Pennant mentions that five hundred Goats were kept on the island. No doubt some of these would escape from time to time, but Goats were obviously regarded as important and attempts would certainly be made to restrain or re-capture them, so it is extremely unlikely that there were any feral Goats on Arran in Pennant's day.

In 1807 the Rev. James Headrick published his *View of the Mineralogy, Agriculture, Manufactures and Fisheries of the Island of Arran* in which he says "Wild goats formerly abounded in Arran; and though their extirpation has been encouraged, on account of the mischief they did to plantations, a few are said still to exist among the mountains". What is more significant is that in a very extensive account of the agriculture he makes no reference at all to domestic Goats. The position was made quite clear by the minister of Kilmorie Parish in the *New Statistical Account* (1840), "Goats are now kept only at one farm, and here they have long since ceased to milk them", and the

Rev. Dr. McNaughton in his account of the natural history of Kilbride Parish said "and there are a few wild goats".

It seems fairly clear, therefore, that by the beginning of the 19th century on Arran the practice of keeping Goats for milking purposes had largely ceased, and no doubt many Goats gained their freedom or were simply abandoned, which would lead to the establishment of the feral herds.

In February 1859 an attempt was made to improve the stock of Red Deer on Arran by introducing six stags and fourteen hinds from Knowsley Park in Lancashire, and deer stalking was recommenced in 1862. Feral Goats were then regarded as a nuisance to stalking, and most of the feral herds were shot out. By the turn of the century only a very few feral Goats were left on Arran, and apparently those which remained were rounded up and transferred to Holy Island, where there was also a herd, some time before the 1914-18 war.

A paragraph in the *Campbeltown Courier* for 5th May 1934 says "The Duke of Montrose has introduced into Arran a pair of Himalayan Goats, which he bought from the London Zoo. He intends to try them out on the slopes of the Arran hills". So far I have been unable to find any additional details in support of this statement, and shall be very glad to receive any further information.

A statement by Cameron and Parnell that they had examined the internal parasites of a Wild Goat from Arran (*Proc. Roy. Phys. Soc. Ed.*, XX11: 141, 1933) was taken by Hugh Boyd Watt (1937) to mean that this Goat was from the main island. I think this is an unwarranted assumption. Cameron and Parnell were concerned in their paper with parasites, and not with the niceties of whether their material came from Arran or Holy Island. All the available evidence indicates that there were no Goats left on Arran by the time of the first World War, and the statement in the *Campbeltown Courier*, if correct, would appear to support this view. It is unlikely that anyone would consider introducing another species of Goat to an area where wild ones were already in existence.

10. HOLY ISLAND:

The Goats on Holy Island also have a fairly ancient history. Pennant visited Holy Island, which he called the Lamlash Isle, during his visit to Arran in 1772, and does mention Goats, but he includes these in a list of domestic animals and it is quite clear that the Goats were in no way wild. The 'Lamlash Isle' had "sufficient pasture and arable land to feed a few milch cows, sheep and goats, and to raise a little corn and a few potatoes". Headrick (1807) said "The island is rented by Cap-

tain Hamilton of the Revenue Cutter, and depastured by a few sheep and goats". Goats are also mentioned in the *New Statistical Account* for 1840.

It is known that up till 1874 the tenant of Holy Island farm kept Goats which were said to be of Irish origin, although some of them were hornless. In 1874 some new stock was introduced from various parts of the West of Scotland, and the size of the herd, which at one time was very low, steadily built up to some forty Goats around the turn of the century. In 1906 a white billy was introduced from Largie estate in Kintyre, and from then on all coloured animals were removed and an all-white herd was built up. It is said that in 1922 and 1923 two other white billies were imported from Ailsa Craig and Inverness-shire respectively (McTaggart, 1970).

Over the years the herd steadily increased in numbers; I counted nearly fifty in 1942, sixty-six in 1948, at least eighty in 1958, and well over a hundred in 1962. These Holy Island white Goats did not appear to be typically Saanen, being smaller and shaggier, and eventually not all the herd was white; in 1962 there were at least twenty multi-coloured Goats.

In April 1964 the Holy Island Goats were extensively shot out; well over a hundred Goats seem to have been shot and only about fifteen survived. Following this cull, which was quite unauthorised, the American owner of the Island, Mr. Stewart Houston of Pennsylvania (who had purchased the island in 1959) asked the Universities' Federation for Animal Welfare (U.F.A.W.) to safeguard the continued existence of the herd, and U.F.A.W. has continued to supervise the herd since then. Another white billy was introduced from Argyll, and since then the herd has again built up in numbers. After the death of Mr. Houston in 1970 Holy Island became the property of U.F.A.W., who established a field-study station there. Detailed accounts of the management of the Goat herd can be found in the U.F.A.W. Annual Reports for the past few years. In 1971 I counted thirty-six Goats; this is in keeping with the U.F.A.W. count which gave the 1971 total as thirty-seven; by 1972 the herd had increased to forty-five Goats.

11. SOUTH BUTE:

At the south end of Bute near Garroch Head there used to be a small herd of Goats; these were introduced around the turn of the century, but in numbers never reached the size of the north herd. The Rev. J.M. McWilliam told me he counted eighteen Goats near Garroch Head in 1928. I counted seven animals in 1943, but shortly afterwards most of the Goats were shot. There was one old billy present until 1948, but since then I have no record of feral Goats in south Bute. These Goats were always

very much under the control of man; they were deliberately introduced and were culled regularly.

12. NORTH BUTE:

There has long been a feral herd of Goats at the north end of Bute, on the moors and hill-slopes near the Kyles. There is no mention of this herd in John Blain's *History* (c.1820) or in the *Old* or *New Statistical Accounts*, but this does not necessarily confirm their absence at that time. The fortunes of this herd have fluctuated considerably over the years; the Rev. J. M. McWilliam counted thirty-six in 1921; there were about fifty animals in the herd just before the last war, but around 1950 steps were taken to reduce the numbers and two or three years later there were barely a dozen animals left. Since then they have increased once again, and the present size of the herd has remained fairly constant around thirty animals during the past ten years.

The following letter from Mr. Alexander Smart (*Scotsman*, 15th January 1932) is well worth quoting; "Regarding the discussions in your paper about herds of wild goats in Scotland, it may interest readers to know that we have two separate herds on the Island of Bute. The herd on the south end near Garroch Head is reduced meantime, but the other herd which runs on the extreme north end numbers over 40 adult goats. The latter herd has been in existence for many years, and some fine heads have been got. In recent years I shot one which carried horns measuring 44¾ inches in length, and 8¾ inches in girth at the base. This may be a record head for Scotland. These goats are not in any way to be considered tame, as they can prove if you try to corner them. From the Kyles of Bute steamers they can be seen with the naked eye in clear weather. The goat with the large head was known to be over 20 years old, and was a magnificent animal, only he became very abusive to younger ones". This horn length quoted is simply astonishing and represents nearly twice the average length of sizeable horns from other parts of the country.

In 1971 I counted twenty-eight Goats in the herd.

13. LOCH RIDDON:

There have long been a few wild Goats on the west side of Loch Riddon, on the hills north of Tighnabruaich, but their numbers have never been large. I have been unable to find any firm details about the early history of this small herd; the first time I saw them was in 1941, when I counted eleven, and I was told locally that they had been there "for years and years". The largest number I ever knew was fourteen in 1947; in 1966 I could only find five. In 1971 I counted eight Goats.

14. GLENDARUEL:

There used to be a small herd of feral Goats near Glendaruel, mostly towards the south-east end of the glen, on the hills between Loch Riddon and Loch Striven. The history of this herd is unknown to me, but their numbers were never large, and presumably there was some inter-breeding between this herd and the Goats at Loch Riddon. There were ten animals in 1939, but in the early part of the war I understand this herd was shot out, apparently on instructions from the Forestry Commission. I have no record of Goats there nowadays.

15. LOCH AWE:

Just south of Loch Awe on the hill-slopes up to Cruach Mhor, south of Portsonachan, there used to be a few wild Goats. There were five in 1956 and in 1960, but in 1963 I could find only one old billy, and have never seen or heard of any Goats in this area since then. I was unable to obtain any information about these Goats from local enquiry, but presumably they were domesticated stock gone wild, possibly fairly recently. When I first saw them in 1956 they seemed quite healthy and there was one young kid, so why they died out is not clear.

16. GLEN FALLOCH:

Goats have been known to frequent the hills of Glen Falloch to the north of Loch Lomond for at least a hundred years. The Rev. R.P.R. Anderson (*Oban Times*, 8th March 1952) gives a good description of the herd in 1899, which at that time numbered about a dozen animals. He indicated that the Goats ranged fairly widely over this area, including the slopes of Beinn Chabhair, and the neighbouring Braes of Balquhidder. This is certainly still the case and the Glen Falloch Goats do not seem to remain long in one particular place. Anderson made an interesting comment that the local shepherds "did not like the wild goats coming about, for sheep were liable to follow the goats' example in seeking tempting tufts of green on dangerous ledges, and sometimes sheep had to be rescued from places from which they could not extricate themselves"; this is the exact opposite of the usual relationship claimed between sheep and goats.

I saw one Goat here in 1971, but others may have been temporarily absent and I did not search further east.

17. INCHLONAIG:

Hugh Boyd Watt (1937) said "a tradition persists that wild goats were inhabitants of the yew-tree island, Inch Lonaig on Loch Lomond", but this was very much more than a mere tradition. John Colquhoun in *The Moor and the Loch* (second edition 1841:

see also later editions, particularly the fourth in 1878) gives a graphic description of goat-stalking on Inchlonaig, mostly around one particular precipice "called from time immemorial Crap-na-gower or Hill of the Goats". At that time he mentions that the herd was deteriorating "the fine old wild ones having been killed off, and some of the tame kind substituted to cross the breed". Colquhoun also said that "These goats, originally a breed between the Welsh and the Highland, were very large, and the oldest inhabitant does not recollect when they were first introduced", but Paterson (*Ann. Andersonian Nat. Soc.*, 1: 55, 1893) said "About the middle of the seventeenth century Inchlonaig was 'laid waste' for use as a deer forest, and as such it has continued to the present time. In the following century fifteen Highland goats were introduced, and the descendents of these remained in a wild state for a long period thereafter. These are now extinct, however, only fallow deer being found on the island at present".

The yew trees on Inchlonaig were said to have been planted on the instructions of King Robert the Bruce to supply bows for his archers (*B.A. Excursion Handbook*, No. 6, 1928) and it has been suggested elsewhere that the Goats were exterminated because of their destruction of the yew trees. The allegation that yew trees were ever planted to supply bows is brushed aside, however, in the *Book of Archery* (1841) by G.A. Hansard, who points out that a yew tree "in a century would hardly supply half-a-dozen bow staves".

Buchanan Smith (1932) said "as to whether there still exist wild goats on the Islands of Loch Lomond is a bit uncertain", but Paterson writing in 1893 clearly stated they were extinct in his time. There are certainly no Goats on Inchlonaig now, and I know of no other islands in Loch Lomond where Goats occurred.

18. BEN LOMOND:

The Ben Lomond Goats probably possess the longest pedigree on the mainland of Scotland, and Buchanan Smith (1932) suggested they deserved the title of 'Royal'. According to legend Goats have inhabited Ben Lomond since the time of King Robert the Bruce, although this does not necessarily mean that there has been continuity of stock. "It is said that once in the early years of the fourteenth century when King Robert the Bruce was fleeing from his enemies that he hid in a cave at Inversnaid and that some wild goats came and lay down at the entrance. His pursuers seeing the goats thought that the Bruce could not be in the cave, and passed on. The King issued a decree that the wild goats should never be molested" (Buchanan Smith, 1932).

The Goats roam fairly widely over the sides of Ben Lomond

and can be seen on the steep sloping ground from Rowardennan north to Inversnaid, but the main herd is usually concentrated on the south-west slopes of Ben Lomond near the peak called Ptarmigan. The fortunes of the herd have fluctuated enormously; before the second World War the population of the herd must have been at least 250 animals, but during and after the war the Goats were considerably reduced by the Forestry Commission; fifty were seen in 1947, but I counted barely forty in 1951; from then on the numbers slowly increased again and during the past ten years the herd seems to have numbered about a hundred Goats, but they are often widely scattered and it is sometimes far from easy to be certain of an accurate count. According to local history the Ben Lomond Goats were virtually exterminated round about the turn of the century, and the stock was re-established by local domestic Goats from Inversnaid going wild or being set free. Goats often used to be seen in the Loch Ard area, apparently travelling between Ben Lomond and Ben Venue, so between these two colonies there was obviously some inter-changing of stock.

In 1971 I counted 106 Goats, of which twelve were pure white.

19. LOCH ARD:

Small groups of Goats have fairly regularly been seen in the Loch Ard area. These goats do not seem to remain long in the one place, and have presumably been travelling between Ben Lomond and Ben Venue, so the Loch Ard Goats can hardly be described as a separate colony.

This may not always have been the case, however, for Buchanan Smith (1932) records that "on the southern slopes of the hill at Ledard which lies to the north side of Loch Ard the incoming tenant in the year 1875 had to pay valuation prices for more than a score of goats. They were not produced but were certified as being on the hill. At the gatherings they never come in with the sheep but during the hard winter of 1878-79 they were brought in to be fed but refused to eat and had to be given their liberty. They were supposed to nibble the green sprouts in dangerous cliffs so as not to tempt the sheep into places where they had to be rescued with ropes".

Within recent years it would probably be correct to record this entire area as having two fairly distinct herds, one on Ben Lomond and one on Ben Venue, with travellers in between, although with the recent reduction of the Ben Venue herd it may now be rare for parties of Goats to be seen in the Loch Ard area; I saw none in 1971.

20. BEN VENUE:

The herd of Wild Goats on Ben Venue is also of considerable antiquity. In 1819 the poet Robert Southey, at that time poet laureate, made an extensive visit to Scotland and recorded his experiences in a *Journal*. This extremely interesting document remained unpublished until 1929 when an edition of it was prepared by Professor C.H. Herford. Southey visited Ben Venue of which he said "Last year the Duke of Montrose sold the woods on Benvenue, which was then completely clothed with fine trees, for the paltry price of £200. It seems incredible that for such a sum he should have incurred the obloquy and the disgrace of disfiguring, as far as it was in his power to disfigure, the most beautiful spot in the whole island of Great Britain". He also made reference to the Goats as follows: "There are goats upon Benvenue which have become wild, but are still considered private property. The boatman supposed them to be about forty. I wish they may be allowed to multiply. The extirpation of wild beasts from this island is one of the best proofs of our advanced civilization, but in losing those wild animals from which no danger could arise, the country loses one of its great charms".

The Goats on Ben Venue have certainly been well known for generations, but as with most mainland herds their fortunes have fluctuated a great deal. In 1819 there were about forty Goats; in 1898 at least fifty were counted; in 1913 there were at least thirty; from then on a considerable increase took place and there were probably in the region of a hundred Goats in the herd by the late 1930s. Hugh Boyd Watt (1937) mentions that three heads of billies shot near Achray are shown in Robert Wallace's book *Farm Live Stock in Britain*, (Plate CCXX11). A head from Achray is amongst the trophies entered in Rowland Ward's book, *Records of Big Game* (ninth edition, 1928), and in the 1920s and 1930s the columns of *The Field* contained several records of Goat heads shot on Ben Venue. A few of the Ben Venue Goats used to be white, and one white billy shot on the Ben on 31st August 1922 had horns 28½ inches long, 33½ inches wide tip to tip, and 7¾ inches in diameter at the base (*Field*, 3rd January 1931).

During the second World War there was considerable shooting of these Goats, and by 1950, when I could find only half-a-dozen scattered Goats in the whole area, the herd was virtually extinct; since then I have only a very few records of Goats in the Ben Venue area. In 1970 and 1971 I saw three Goats on Ben Venue and was told locally that there were "quite a few back now", but exactly what this meant I was unable to discover.

As with Loch Ard, Ben Venue lies just outwith the boundaries of the Clyde faunal area, but they have both been included

in this survey because it seems impossible not to regard Ben Lomond, Loch Ard and Ben Venue as three parts of one extended colony.

21. SOUTH LANARKSHIRE:

There used to be a few feral Goats in south Lanarkshire, on the hills between Crawfordjohn, Leadhills and Elvanfoot. I have been unable to trace any ancient references to these Goats, and local information indicated that the stock was derived from domestic Goats which got free fairly recently, probably during the last war; this may well be correct. In 1954 I saw seven Goats, but on a visit to the area in 1962 I saw none. I saw none this year (1972), and presume that Goats are now extinct in this area.

22. NORTH AYRSHIRE:

During the late 1930s some domestic Goats escaped and bred in the feral state in north Ayrshire, on the hills near Roebank close to the Renfrewshire border. They wandered fairly widely and occasionally strayed into Renfrewshire. Ultimately there seem to have been eight or nine animals in this small herd, but they had disappeared by 1945. Presumably they died out, or were more probably shot during the war when they might have been regarded as competing for grazing.

23. GLEN APP:

This herd, and probably all the other Goats in south-west Scotland, was presumably derived from escaped Irish Goats imported by way of Stranraer. There was certainly a herd of Goats in Glen App in the 1850s, but they appear to have died out or been exterminated before 1930. Buchanan Smith (1932) said "they may now be defunct, as there has been no news for a few years". Certainly there are no Goats there nowadays.

24. THE MERRICK:

There has long been a herd of feral Goats on the Ayrshire/Kirkcudbright border around the hill of the Merrick. Before the war this was a substantial herd of nearly two hundred Goats; many were shot during the war, apparently by the Forestry Commission, but even by the mid-1940s the herd must have been close on a hundred. They have steadily declined in numbers since then, however, and within recent years I have seen very few. These Goats always inter-mingled a great deal with the goats of Glen Trool and, as with the Goats of Loch Ard between Ben Lomond and Ben Venue, this colony probably had no true separate existence.

In 1971 I counted eleven Goats.

25. GLEN TROOL:

The Glen Trool Goats also have a fairly ancient history and, as with all Goats in this area, are presumably descended from imported Irish Goats which got free. Apparently there was never a very large herd and within recent years the numbers have been controlled by the Forestry Commission. Most of the Goats are in the area between Loch Trool and the Glen Head Lochs and Loch Dee. This is very much on the fringe of the Clyde faunal area, but since this is in many ways merely an extension of the colony on the Merrick, I feel it must be included.

In 1972 I counted at least thirty, and this may not have been the entire herd.

SUMMARY:

Feral herds of Goats are known to have existed at some twenty-five sites throughout the Clyde faunal area. At one of these, Ailsa Craig, Goats were known to have led an isolated existence for at least two hundred years, and at another, Ben Lomond, Goats are known to have been present for six hundred years, although here there may not have been continuity of stock. At nearly half of these Clyde sites Goats were known to have been present for more than a century.

At the present time there are feral herds of Goats at some twelve sites throughout the Clyde area. Two herds, on the Mull of Kintyre and at Ben Lomond, each have in the region of a hundred Goats, but both of these herds are very scattered. The remaining herds are fairly small, with usually twenty to thirty animals. A count of all the herds during 1971 and 1972 gave a total of nearly 400 Goats.

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TWO CENTURIES OF BOTANICAL RECORDING ON AILSA CRAIG

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The flora and fauna of islands have always attracted the attention of naturalists, and Ailsa Craig is no exception. Detailed accounts are already available of Ailsa's birds (Gibson, 1951-52), butterflies (Gibson, 1952), mammals, reptiles and amphibians (Gibson, 1969 & 1970). Dr. Gibson's papers are compilations of his own observations and many scattered old records in the previous literature. The published plant records for Ailsa Craig are similarly scattered, and the following is an attempt to bring together the more important of those available and assess them against the present-day knowledge of the island's flora.

Ailsa Craig is situated at the entrance to the Firth of Clyde, about 8½ miles from the nearest point on the Ayrshire mainland. It is volcanic in origin and composed of a fine grained granite, made up principally of felspar and quartz. The high perpendicular columns of granite are broken up by more easily weathered dykes of dolerite, to form clefts and caves. There is no sand or salt marsh around the island. Botanically, the most productive areas are found where there is only a moderate influence from the immense amount of guano produced by the large colonies of seabirds. These include the south cliffs, the rock clefts, the Garry Loch and a small number of springs. Where the influence of the guano is greatest, such as below the west cliffs, only a rank growth of the most nitrophilous species is possible.

The earliest known botanical excursion to Ailsa Craig was made by the Rev. John Lightfoot on 25th June 1772, while collecting material for what was to be the first comprehensive flora of Scotland (Pennant, 1774). Following a slow crossing from Arran, the visit took the form of a climb to the castle ruins before re-embarking for Campbeltown. Only four of the island's commonest plants, which can still be found beside the path to the castle, were subsequently included in the *Flora* (Lightfoot, 1777). Pennant mentions groves of Elder (*Sambucus nigra*) below the cliffs, as the only tree occurring on Ailsa.

MacCulloch (1819), includes the Craig in a description of his Scottish tours undertaken from 1811 onwards. Again, only four common plants are mentioned in the account. His 'enormous' specimens of *Hydrocotyle vulgaris* were almost certainly *Umbilicus rupestris*. In a later work (MacCulloch, 1824), Ailsa is depicted as a 'brilliant garden', with its profusion and intermixture

of *Silene dioica* and *S. maritima*.

The Rev. David Landsborough made a brief visit to Ailsa Craig about 1830, staying on the island only an hour (Landsborough, 1852). Once again the same few plants beside the castle path were noted, but other members of the party apparently discovered an abundance of *Apium inundatum* around the Garry Loch. This species appears never to have been seen on the island since, and confirmation of the record is therefore required. The return trip was not without incident. On leaving Ailsa, the steamer stuck fast on submerged rocks in the face of rapidly deteriorating weather, and it was only with difficulty the boat was freed at high-tide.

The first extensive list of plants resulted from an excursion by botany students on 22nd July 1844, led by the indefatigable Dr. John Hutton Balfour, then Professor of Botany at the University of Glasgow (Balfour, 1845). Despite an exhausting crossing taking over seven hours, good coverage of the island was achieved. Eighty flowering plants, including *Lavatera arborea*, and seven ferns were recorded. Dr. Balfour later exhibited a number of specimens from the excursion to the botanical section of the Glasgow Philosophical Society, and his plant list was also included in the 2nd edition of the Rev. R. Lawson's *Ailsa Craig*, published in 1895. Recent confirmation is particularly required for the records of *Arabis hirsuta*, *Saxifraga hyponoides* and *Myosotis ramosissima*, the latter having only one other known locality (South Kintyre) in the Clyde area (Lee, 1933 & 1953).

A collection of 109 species, including fourteen grasses, was made during two visits to the Craig about 1864 by a Glasgow geologist W.N. MacCartney (Bryce, 1872). To date, no trace has been found of either the list or any of the specimens. MacCartney published a geological paper on Ailsa Craig in 1869, but no mention is made of his botanical work.

An excursion was made to the Craig on 3rd June 1893 by a few members of the Andersonian Naturalists' Society of Glasgow, under the leadership of H.B. Watt (Smith, 1893). Sixty-three species were noted, including *Corydalis claviculata* and *Carduus acanthoides*, both uncommon plants in Ayrshire. Confirmation is desirable for both species. The *Spergularia sp.* (also recorded by Balfour) found growing on the cliffs was almost certainly *Spergularia rupicola*, although Lee (1933) surprisingly suggests *S. marina* or *S. media*, plants normally found on muddy shores or in salt marshes.

A revised edition of *The Botany of Ayrshire*, by Borland, Duncan and Landsborough, appeared in 1894 in the *Annals* of the Kilmarnock Glenfield Ramblers Society. The original, prepared

in 1872 by these three former members of the short-lived Ayrshire Naturalists' Club (1850-54), was based on parish plant lists included in the *New Statistical Account* (1845). With the possible exception of *Lavatera arborea*, it is not believed that the first edition contained any Ailsa records. The second edition included additional notes by the Ayrshire botanist John Smith, and *Rhynchosinapsis monensis* and *Lavatera arborea* are listed as Ailsa plants.

Smith brought out his own *Botany of Ayrshire* in 1896. Of the sixty-three species recorded on the 1893 excursion, forty-eight were included in the Flora as occurring on Ailsa. With the exception of *Plantago coronopus* and the *Spergularia sp.*, the omitted species were fairly ubiquitous in the county. Four additions were made to the excursion list, including *Spergularia rubra* and *Leontodon hispidus*. Lee (1933) doubted the record for *S. ruba*, but an Ailsa specimen, dated 1892, exists in the herbarium of the Department of Botany, Cambridge University (S.M. Walters, *in litt.*). Lee does not mention the record for *L. hispidus*, a plant rather local in the Clyde area and requiring confirmation as an Ailsa species.

A second excursion was made by the Andersonian Naturalists' Society, in conjunction with the Natural History Society of Glasgow, on 24th May 1900 (Smith, 1900). Eight species additional to the 1893 excursion list were recorded, including *Fumaria capreolata* and *Vicia lathyroides*. *V. lathyroides* requires recent confirmation. A possible record for *Carlina vulgaris* was also tentatively put forward, but it is doubtful whether this species of calcareous grassland occurs on the Craig.

Only seven Ailsa plants are mentioned in Peter Ewing's list of Clyde phanerogams, included in the *Handbook* prepared for the second Glasgow meeting of the British Association (Ewing, 1901). The species list is based on West of Scotland vice-county records compiled originally for Ewing's *Glasgow Catalogue of Native and Established Plants*, first published in 1892 with a second edition in 1899. Smith supplied the bulk of the Ayrshire material for the *Catalogue*, but he apparently included few Ailsa records. One previously unrecorded species for Ailsa appears in the *Handbook* list - *Allium ursinum*, a record that still requires confirmation.

A number of new species were apparently added to the flora of Ailsa Craig in an unpublished list by W.B. Gourlay and G.M. Vevers in 1922. Mention of the list is made in the references for *The Land Vegetation of Ailsa Craig* (Vevers, 1936). Unfortunately, this unpublished list can no longer be traced (H.G. Vevers, *in litt.*).

The publication of John R. Lee's *Flora of the Clyde Area*

in 1933 brought together for the first time almost all the available plant records for Ailsa Craig; 104 Ailsa species are mentioned in the account, which includes comment on the validity of some of the records. The following year, a similar compilation of Ailsa records appeared as an unacknowledged appendix to R.A. Downie's *Bute and the Cumbraes*. Lee's *Clyde Flora* appears to have been consulted in the production of this list, for all questionable records have been omitted. The inclusion of *Scirpus sylvaticus* is an error, and should read *S. setaceus (Isolepis setacea)*.

H.G. Vevers spent a considerable amount of time on the island between 1930 and '35. His paper, mentioned above, is a valuable account of the physiographic factors and the effect on the vegetation. The appended plant list of 134 species is a compilation of most of the published records, the unpublished list of 1922 and Vevers' own observations. Unfortunately, the previous questionable records are included without qualification. From the habitat descriptions contained in the paper and in a subsequent account (Vevers, 1948), the occurrence of *Viola canina* must be considered doubtful. Lee (1933) particularly refers to the possible confusion between this species and the common *V. riviniana*. Amongst the twenty-nine additional species published for the first time, confirmation is particularly required for *Atriplex littoralis*, *Potentilla reptans* and *Pucinellia maritima*, all probably only casuals.

After several attempts to visit the Craig had been foiled by stormy weather, members of the Andersonian Naturalists of Glasgow made a successful two-day excursion to the island on 14th and 15th June 1958, under the leadership of R. Mackechnie, B.W. Ribbons and A. Slack. Two field cards were completed for the *Botanical Atlas* project organised by the Botanical Society of the British Isles. Amongst 104 species recorded, the *Viola sp.* is referred to as *V. riviniana* and seventeen new plants were added to the island's list (Perring and Walters, 1962).

The most interesting plant on the island is undoubtedly the Tree Mallow *Lavatera arborea*, Ailsa Craig being just about its most northerly native station. The colony, however, has fluctuated wildly in the last seventy years. In abundance at the turn of the century (Smith, 1900) it became restricted to the inaccessible ledges on the West Trammins (south cliffs) by the 1930s (Vevers, 1936). Vevers attributed the decline to the activities of the island's goat population, and from information available on the status of the animal (Gibson, 1969), this may well be the case. There was a steady increase of feral goats from 1902 until the early 1930s, when steps were taken against them, leading to complete extermination by the mid-1940s. In 1958, the Andersonian excursion found well established plants in abundance below the Trammins once again. About this time, the last

permanent residents left Ailsa, and a few of their domestic goats escaped to the hill. During personal visits in 1966 and 1969 not a single plant was found, but in 1970 three small plants were located on the West Trammins. In 1972 between twenty and thirty small plants were found in the same locality. The numbers of goats have declined in recent years and may have already died out (Gibson, 1970), and it remains to be seen if there will be a resurgence of the Tree Mallow during the next decade. Apart from *Lavatera arborea*, the luxuriance and abundance of *Raphanus maritimus*, *Silene maritima*, *Spergularia rupicola*, *Umbilicus rupestris*, *Armeria maritima* and other species on the south-facing Trammins, combine to produce what is probably the best example of terraced sea-cliff vegetation in the Clyde area.

PLANT LIST (159 SPECIES)

The following plant list for Ailsa Craig contains both species recently confirmed and species awaiting confirmation. Undoubtedly the list contains several casuals that perhaps no longer survive. This is probably most true of plants associated with disturbed ground, the part-crofting tenants having ceased permanent residence on the island in the 1950s. The order and scientific names follow Clapham, Tutin and Warburg's *Flora of the British Isles* 2nd edition (Cambridge 1962).

Ferns

Pteridium aquilinum	Bracken
Phyllitis scolopendrium	Hart's tongue Fern
Asplenium adiantum-nigrum	Black Spleenwort
Asplenium marinum	Sea Spleenwort
Asplenium trichomanes	Maidenhair Spleenwort
Asplenium ruta-muraria	Wall-rue
Athyrium filix-femina	Lady-fern
Dryopteris filix-mas	Male Fern
Dryopteris dilatata	Broad Buckler-fern
Polypodium vulgare	Common Polypody

Flowering Plants

Caltha palustris	Marsh Marigold
Ranunculus acris	Meadow Buttercup
Ranunculus repens	Creeping Buttercup
Ranunculus bulbosus	Bulbous Buttercup
Ranunculus flammula	Lesser Spearwort
Corydalis claviculata	Climbing Corydalis
Fumaria capreolata	White Fumitory
Rhynchosinapsis monensis	Isle of Man Cabbage
Raphanus maritimus	Sea Radish
Capsella bursa-pastoris	Shepherd's Purse

Cochlearia officinalis	Scurvy-grass
Erophila verna	Whitlow Grass
Cardamine pratensis	Lady's Smock
Cardamine hirsuta	Hairy Bitter-cress
Arabis hirsuta	Hairy Rock-cress
Arabidopsis thaliana	Thale Cress
Viola riviniana	Common Violet
Viola palustris	Marsh Violet
Polygala serpyllifolia	Heath Milkwort
Silene dioica	Red Campion
Silene maritima	Sea Campion
Cerastium holosteoides	Common Mouse-ear Chickweed
Cerastium atrovirens	Dark-green Mouse-ear Chickweed
Stellaria media	Common Chickweed
Sagina maritima	Sea Pearlwort
Sagina procumbens	Procumbent Pearlwort
Honkenya peploides	Sea Sandwort
Spergularia rubra	Sand-spurry
Spergularia rupicola	Rock-spurry
Montia fontana	Blinks
Chenododium album	Fat Hen
Attriplex littoralis	Shore Orache
Attriplex glabriuscula	Babington's Orache
Attriplex patula	Common Orache
Lavatera arborea	Tree Mallow
Geranium molle	Dove's-foot Cranesbill
Erodium cicutarium	Common Storksbill
Trifolium dubium	Lesser Yellow Trefoil
Trifolium repens	White Clover
Trifolium pratense	Red Clover
Lotus corniculatus	Birdsfoot Trefoil
Vicia sepium	Bush Vetch
Vicia sativa, Ssp. angustifolia	Narrow-leaved Vetch
Vicia lathyroides	Spring Vetch
Rubus fruticosus	Bramble
Potentilla erecta	Common Tormentil
Potentilla reptans	Creeping Cinqfoil
Fragaria vesca	Wild Strawberry
Aphanes arvensis	Parsley Piert
Rosa canina	Dog Rose
Sedum anglicum	English Stonecrop
Umbilicus rupestris	Pennywort
Saxifraga hypnoides	Mossy Saxifrage
Epilobium montanum	Broad-leaved Willow-herb
Epilobium palustre	Marsh Willow-herb
Callitriche platycarpa	Water Starwort
Hedera helix	Ivy
Hydrocotyle vulgaris	Marsh Pennywort
Apium inundatum	Marshwort

Oenanthe crocata	Hemlock Water Dropwort
Angelica sylvestris	Wild Angelica
Polygonym aviculare	Knotgrass
Rumex acetosella	Sheep's Sorrel
Rumex acetosa	Common Sorrel
Rumex crispus	Curled Dock
Rumex obtusifolius	Common Dock
Urtica urens	Small Nettle
Urtica dioica	Stinging Nettle
Populus tremula	Aspen
Calluna vulgaris	Ling
Erica cinerea	Bell-heather
Vaccinium myrtillus	Blaeberry
Armeria maritima	Thrift
Anagallis arvensis	Scarlet Pimpernel
Anchusa arvensis	Bugloss
Myosotis arvensis	Common Forget-me-not
Myosotis discolor	Yellow and Blue Forget-me-not
Myosotis ramosissima	Early Forget-me-not
Cymbalaria muralis	Ivy-leaved Toadflax
Digitalis purpurea	Foxglove
Veronica officinalis	Common Speedwell
Veronica chamaedrys	Germander Speedwell
Veronica serpyllifolia	Thyme-leaved Speedwell
Veronica arvensis	Wall Speedwell
Veronica agrestris	Field Speedwell
Euphrasia officinalis	Eyebright
Thymus drucei	Wild Thyme
Prunella vulgaris	Self-heal
Teucrium scorodonia	Wood Sage
Plantago major	Great Plantain
Plantago lanceolata	Ribwort Plantain
Plantago maritima	Sea Plantain
Plantago coronopus	Buck's-horn Plantain
Jasione montana	Sheep's-bit
Galium saxatile	Heath Bedstraw
Galium aparine	Goosegrass
Sambucus nigra	Elder
Lonicera periclymenum	Honeysuckle
Succisa pratensis	Devil's-bit Scabious
Senecio jacobaea	Common Ragwort
Senecio vulgaris	Groundsel
Solidago virgaurea	Golden-rod
Bellis perennis	Daisy
Tripleurospermum maritimum	Scentless Mayweed
Artemisia vulgaris	Mugwort
Arctium minus	Lesser Burdock
Carduus tenuiflorus	Slender Thistle
Carduus acanthoides	Welted Thistle

Cirsium vulgare	Spear Thistle
Cirsium palustre	Marsh Thistle
Cirsium arvense	Creeping Thistle
Hypochoeris radicata	Smooth Cat's Ear
Leontodon autumnalis	Autumnal Hawkbit
Leontodon hispidus	Rough Hawkbit
Sonchus oleraceus	Common Sow-thistle
Sonchus asper	Spiny Sow-thistle
Hieracium sp.	Hawkweed sp.
Crepis capillaris	Smooth Hawk's-beard
Taraxacum officinale	Common Dandelion
Zostera marina	Eel-grass
Endymion non-scriptus	Bluebell
Allium ursinum	Ramsons
Juncus squarrosus	Heath Rush
Juncus bulbosus	Bulbous Rush
Luzula pilosa	Hairy Woodrush
Luzula sylvatica	Greater Woodrush
Luzula campestris	Field Woodrush
Isolepis setacea	Common Mud-rush
Festuca rubra	Red Fescue
Festuca ovina	Sheep's Fescue
Lolium perenne	Rye-grass
Vulpia bromoides	Squirrel-tail Fescue
Puccinellia maritima	Common Salt Marsh Grass
Poa annua	Annual Meadow Grass
Poa pratensis	Smooth Meadow Grass
Dactylis glomerata	Cock's-foot.
Cynosurus cristatus	Crested Dog's-tail
Bromus mollis	Soft Brome Grass
Arrenatherum elatius	False Oat
Holcus lanatus	Yorkshire Fog
Holcus mollis	Creeping Soft-grass
Deschampsia flexuosa	Wavy Hair-grass
Aira praecox	Early Hair-grass
Aira caryophyllea	Silver Hair-grass
Agrostis canina	Brown Bent
Agrostis tenuis	Common Bent
Agrostis stolonifera	Creeping Bent
Alopecurus geniculatus	Marsh Fox-tail
Anthoxanthum odoratum	Sweet Vernal-grass

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THE REPTILES AND AMPHIBIANS OF KINTYRE

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To the best of our knowledge no detailed account of the reptiles and amphibians of the Kintyre peninsula has hitherto been published. Over the years the columns of the *Campbeltown Courier* have carried many interesting notes on Kintyre Adders, and in 1970 Dr. Gibson published a paper on the reptiles and amphibians of the islands of Sanda, Sheep Island and Glunimore, off the south-east tip of Kintyre. Apart from this only a few scattered observations have appeared, so it is hoped that these collected notes on the reptiles and amphibians of the Kintyre peninsula will fill a gap in our knowledge of West of Scotland natural history.

REPTILES

SLOW-WORM *Anguis fragilis* Linnaeus 1758

The Slow-Worm is fairly common and widely distributed throughout the Kintyre peninsula, being found from sea-level up to a height of about 1000 feet. It is common on Sanda, and we have a few records from Sheep Island and Davaar.

Mr. Colville once had an unusual experience when fishing with worm at a hill-loch; he laid down his rod with bait attached while he went back to his car, and on his return a few minutes later he discovered that a Slow-Worm had eaten the worm and attached itself to the hook (see *Field*, 27th September 1928).

SAND LIZARD *Lacerta agilis* Linnaeus 1758

The late Dugald Macintyre in his many 'Nature Notes' often referred to Sand Lizards in Kintyre; this, however, is a popular local name for the Common Lizard and does not imply *L. agilis*. Dugald Macintyre was an expert naturalist and knew very well that there were no Sand Lizards in Scotland.

In the *Field* for 11th July 1903 there was a description of an Adder from Clachan, Argyll, which was said to have swallowed a Sand Lizard. This was an error for the Common or Viviparous Lizard and was corrected in the next issue (*Field*, 18th July 1903). The particular 'Clachan' is not specified, but the Kintyre one is the most likely.

Since these references to Sand Lizards may possibly cause confusion, we feel we should draw attention to them simply to

dismiss them.

COMMON LIZARD *Lacerta vivipara* Jacquin 1787

The Common or Viviparous Lizard is well-known and widely distributed throughout Kintyre, being found from sea-level nearly to the tops of the highest hills, although it is most commonly found in warm sheltered glens. It is common on Sanda, fairly common on Davaar, and has been seen on Sheep Island.

GRASS SNAKE *Natrix natrix* (Linnaeus) 1758

On 17th September 1932 Dr. Norman Morrison, the well-known authority on the Adder, released three Grass (or Ringed) Snakes on the slopes of Bengullion (1154 feet), near Campbeltown, as an experiment to see whether they would survive a winter in Kintyre; these three Grass Snakes, a male and two females, had been obtained from Huddersfield and measured three feet, two feet six inches, and two feet six inches respectively (*Campbeltown Courier*, 24th September 1932). On 18th August the following year Dr. Morrison recaptured one of these Grass Snakes near the point of release (*Scotsman*, 21st October 1933), and at the beginning of August 1934 another was killed on Kildalloig Hill nearby; this snake measured forty inches long and the *Courier* Office, where it had been deposited, was nearly besieged by people who thought it was a record Adder (*Campbeltown Courier*, 11th August 1934). The fate of the third specimen is unknown and no subsequent records of Grass Snakes came to light.

The *New Statistical Account* for Killean and Kilchenzie parish (1843) records the "ring-snake, destitute of poisonous fangs", as well as the Adder and the Slow-worm. We are unable to explain this and, apart from Dr. Morrison's experiment, know of no records of Grass Snakes in Kintyre.

ADDER *Vipera berus* (Linnaeus) 1758

The Adder is extremely common in Kintyre, and is widely distributed throughout the entire peninsula, from sea-level to the tops of the highest hills, although it is most commonly found on the low-lying ground at the foot of the Glens. In some localities Adders are particularly common, and there are several instances on record of over twenty having been killed by one person on a morning's walk. In Kintyre Adders usually emerge towards the beginning of April and begin to hibernate by late September, but the date may vary greatly. There are numerous records of Adders being found active in winter, usually following a warm spell of weather, but these creatures would all certainly die. The columns of the *Campbeltown Courier* have occasionally carried reports of Adders, killed and dissected,

which were found to have swallowed an entire Weasel, Rat, young Grouse or small bird.

No account of the Adder in Kintyre would be complete without mentioning Dr. Norman Morrison, the well-known authority on the Adder. Dr. Morrison was a retired police-sergeant who studied Adders in Argyll for fifty years, ultimately published a book, *The Life Story of the Adder* (1924), which became a standard work, wrote extensively on many other natural history subjects, and was finally awarded the degree of Doctor of Science. He died in Campbeltown in 1949 aged 79.

There is often controversy about the size of Adders in Kintyre, and in 1934 a considerable local argument was conducted in the columns of the *Campbeltown Courier*. Replying to some correspondence, Dr. Morrison challenged the reported lengths of some Adders, and said that he had only once seen an Adder in Argyll measuring 25 inches. All this correspondence led to the offer of a reward of one pound to the first person who brought an Adder of 26 inches or more to the *Courier* office, the length to be verified by Dr. Morrison. The next issue of the newspaper brought an anguished protest from the *Courier* Editor (19th May 1934) that his office was rapidly becoming a depository for Adders. Several Adders of 26 inches were produced, however, and one measuring 26½ inches. Nevertheless, Adders of two feet in length are distinctly uncommon in Kintyre and most of those killed measure 18 inches or less. Reports of larger Adders usually (but not always) indicate estimates of size or lack of accurate measurement.

Adders are very good swimmers and have often been seen swimming across the surface of streams and lochs. A well-known local angler when fishing a hill-loch once hooked an Adder; it was not foul-hooked, and the assumption was that it took the fly in the normal way (see *Scotsman*, 5th June 1937). Records of Adders in salt water are rare, but one was seen swimming across West Loch Tarbert in 1901 (*Campbeltown Courier*, 4th May 1901), and Dr. Morrison lists even more remarkable records of Adders having been caught swimming between Arran and Kintyre (see *Scotsman*, 7th December 1929). It is always possible, however, that these Adders were picked up by a gull and later dropped into the sea.

There are no Adders on the Sanda Island group, but we have a few records from Davaar.

LEATHERY TURTLE *Dermochelys coriacea* (Linnaeus) 1758

A Leathery Turtle or Luth was caught by the fishing-boat 'Hercules' in the Kilbrannan Sound on 11th August 1959. It was taken to Calderpark Zoo, Glasgow, where it died, and the body

was taken to Kelvingrove Museum. A detailed report on the specimen appeared in the *Scottish Naturalist*, Volume 70, 1961, page 46. This appears to be the first fully authenticated record of the Leathery Turtle in Scottish waters.

TURTLE *Species indeterminate*

To the best of our knowledge there are at least two other records of Turtles in Kintyre waters.

The *Campbeltown Courier* for 4th September 1875 contains the following paragraph: "On Monday last Mr. Dugald McCorkindale, master of the schooner Ben More, while coming down the Sound of Kilbrannan, picked up a large turtle, measuring five feet six inches long and three feet six inches broad. It was taken over to Mr. Mathieson, manager, Bulloch Lade Distillery". If these measurements are correct, and there is no reason to think otherwise, then this might well have been a Leathery Turtle.

In August 1947 the crew of a Campbeltown fishing boat saw a Turtle swimming in the sea about five miles off Sanda Island. It was a large specimen and they estimated it to be about four feet long (*Fishing News*, 23rd August 1947, page 8).

AMPHIBIANS

WARTY NEWT *Triturus cristatus* (Laurenti) 1768

The Warty or Crested Newt was reported from Carradale Glen in the *British Association Handbook* for 1901. Dr. Gibson found several specimens there in 1949 but has searched for it repeatedly since then without success. This is the extent of our knowledge, and we shall be glad to receive any additional information.

SMOOTH NEWT *Triturus vulgaris* (Linnaeus) 1758

The Smooth Newt does occur in Kintyre, but in our experience it is nowhere common, and is locally confined to some suitable low-lying areas. We have no records from the islands.

PALMATE NEWT *Triturus helveticus* (Razoumowski) 1788

The Palmate Newt is far and away the commonest newt in Kintyre, and is widely distributed throughout the entire peninsula. It occurs fairly commonly on Sanda, from where it was first reported in 1920 (*Scot. Nat.*, 1921: 21), but we have no records of newts on any of the other islands.

COMMON TOAD *Bufo bufo* (Linnaeus) 1758

During the past one hundred years the Toad and the Frog have undergone a complete reversal of status within Kintyre. At present the Toad is still fairly well distributed throughout the peninsula, but nowadays it is nowhere nearly as common as the Frog. Seventy-five years ago, when Mr. Colville was a boy, the local children used to catch several Toads for every Frog they saw, but the reverse is now very much the case; the Frog has greatly increased and the Toad is now absent from some areas where it was formerly well-known. Mr. John Bain, formerly Head-lightkeeper on Sanda, found several Toads on Sanda in the mid-1940s, but we know of no subsequent records until this year (1972), when Mr. J. Mitchell and Mr. R.G. Nisbet found several specimens beside the lighthouse road in the evenings of 25th to 28th August (J. Mitchell, *in litt.*). They were also told by Mr. E. Myers, the farm-manager, that Toads had been very common in 1971. This is very clearly a considerable change in status, at present unexplained, which we shall watch with interest. Toads are occasionally found on Davaar.

COMMON FROG *Rana temporaria* Linnaeus 1758

Has greatly increased during the past hundred years; now common and widely distributed throughout the entire peninsula, and occasionally appears in some districts in 'plague' form. In our experience, just after emerging from hibernation large numbers of Frogs are eaten by Otters. The Frog is at times abundant on Sanda, and in some years after the spawn has hatched it is almost impossible to walk across parts of Sanda without treading on a carpet of small frogs (see *Trans. Buteshire Nat. Hist. Soc.*, 1970: 33). To the best of our knowledge there are no Frogs on Sheep Island or Glunimore, but Frogs are reasonably common on Davaar.

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LATE NEOLITHIC SETTLEMENT IN GRYFESDALE, RENFREWSHIRE

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In 1962, classification of hut circles in N.W. Renfrewshire led to the conclusion that the simpler huts of the Gryfe Reservoir area, type Gryfe A, might be of Beaker, or Early Bronze Age date; a conclusion intended to be tested with the spade *(Note 1)*. But while the series of excavations of type sites, commenced at Knapps *(Note 2)*, was continuing under Miss Helen C. Nisbet's direction, at Craigmarloch *(Note 3)*, all sites south of Gryfe Reservoir were mutilated by drainage trenches and the entire area planted out by the Forestry Commission. The advantage offered by this systematic if unscientific excavation has been accepted, and the moorland thoroughly quartered *(Note 4)*.

At the same time artifacts have been seasonally collected from both banks of the Green Water, especially from the farms of Lawpark and East Green *(Note 5)*, four miles south-east of the Gryfe settlements.

The present report summarises the results in fresh sites and finds.

GRYFE RESERVOIR AREA *(Fig. 1)*

Sites

The following structures are additional to those already recorded.

GRYFE RESERVOIR A. Outlier e. NS28657134. A round hut, 15 feet in diameter, on the north side of and partly obliterated by the track from Garshangan to Garvock Lodge.

41. LURG MOOR. NS73552979. A boulder walled house, type Green Water D, 32 feet in diameter over a 4 foot wide wall with 3 foot entrance in east. Within, extending across the centre from the south side, is a rectangular build, 14 feet north-south by 8 feet over 2 foot walls, divided by a cross wall 8 feet 6 inches from south.

42. GARVOCK LODGE. NS27427154. A hut, type Gryfe A, 17 feet 9 inches by 18 feet 6 inches (interior 12 feet by 15 feet), increased in length to 23 feet by a small chamber on east.

43. GRYFE RESERVOIR C. NS26687199. Forty feet north-east of the large circle is a second, about 31 feet overall, of which only a semi-circle is clearly traceable.

V. A small cairn, NS26737193, 15 feet in diameter.

W. Some 50 feet north of Gryfe Homestead (22), a rectangular build, NS28407123, kerbed with heavy blocks, 20 feet long and widening from 6 feet at South to 9 feet 6 inches. If a chamber, this is remarkably degenerate.

Open Sites

Apart from structures, occupation traces have occurred at fourteen places in sufficient density to warrant their consideration as open occupation sites. These are small knolls or ridges of a significant distribution in relation to structural sites.

OS C. A terrace fronting Site C (12) on north and west, NS-26687199.

SITE B (11). The area included within the croft enclosure, NS26787178.

OS 1. West side of a rise west of Site C (12), NS26507190.

OS 2. Moor ridge south of Garvock Lodge, NS276714-277714.

OS 3. Mound south of Site A (1), NS28307135.

OS 4. Ridge south-west of Gryfe Homestead (22), NS28357120.

OS 5. Ridge south-west of OS4, NS28237112.

OS 6. Ridge beside road, east of Garshangan Burn, NS28557125.

OS 7. Ridge south of OS6, NS28457120.

OS 8. Ridge south of road and west of Garshangan boundary wall, NS28857126.

OS 9. Ridge south of OS8, NS28847120.

OS 10. Long ridge south of OS9, NS28807120.

OS 11. Local rise with hollow surface just east of Cairn C, NS-28167140.

OS 12. Moor terrace south-west of a crag south of road bend east of Garvock Lodge wood, NS27657150.

Small Finds

OPEN SITE C

Sherds: 1. Sherds of a fine thin red ware beaker with dark core, buff slip, and decorated with impressed comb pattern except at the cordoned rim where lines of punctulations follow the edge of the lip and the surface of the cordon *(Fig. 2: 1)*. In one sherd *(Fig. 2: 2)* the comb pattern is emphasised with white coating which has been applied to the surface but survives largely in the comb pits *(Note 6)*; while an uncoated plain zone is burnished *(Fig. 2: 3)*. A small sherd *(Fig. 2: 4)* bears a design of punctulations between zones of faint vertical lines, possibly lightly impressed comb pattern. Pits diagonally down left to right are deeper than others which form a horizontal line between the faint comb lines. On the inner surface a faintly incised line parallels the upper comb impression. 2. A second vessel, bright red with burnished black inner surface, has been decorated with continuous twisted cord *(Fig. 2: 5)*. The vessels contain small quartz and flint grits. 3. Sherd of comb decorated beaker. 4-8. Sherds of five cord decorated beakers from different spots. All are 5mm - 8mm thick and all from the surface of glacial brash separated from peat by a thin pan layer. Two further sherds of twisted cord beakers came from within the bottom two inches of peat in a marshy hollow between sites C (11) and B (12).

Artifacts (Note 7): A white flint knife *(Fig. 2: 22)*; a lemon-slice of white flint, 1.2 inches long, trimmed as a borer along the edges and round the point on the reverse; a white flint blade, 1.15 inches long, high backed, pressure flaked and closely trimmed along the left reverse edge and round the point, and on the flat bulbar face, lightly trimmed along the opposite edge; two thumbnail scrapers, 0.6 inches and 0.7 inches of white and yellow flint; a utilised blade of grey flint; a white flint core; a quartzite hammer stone.

From within the large circle south of the hut came two struck flakes and the small scraper *(Fig. 2: 35)* all of white flint.

SITE B.

Sherds: 1. Rim sherd of Rinyo-Clacton ware *(Fig. 2: 10)*, hard gritty red, somewhat sandy with white grits, but the outer surface varies from red to leathery brown, lightly burnished and comparable with rougher Neolithic A ware. Faint lines give a combed appearance to the neck. Over these between lip and moulded cordon are wide left down to right incisions. Beneath

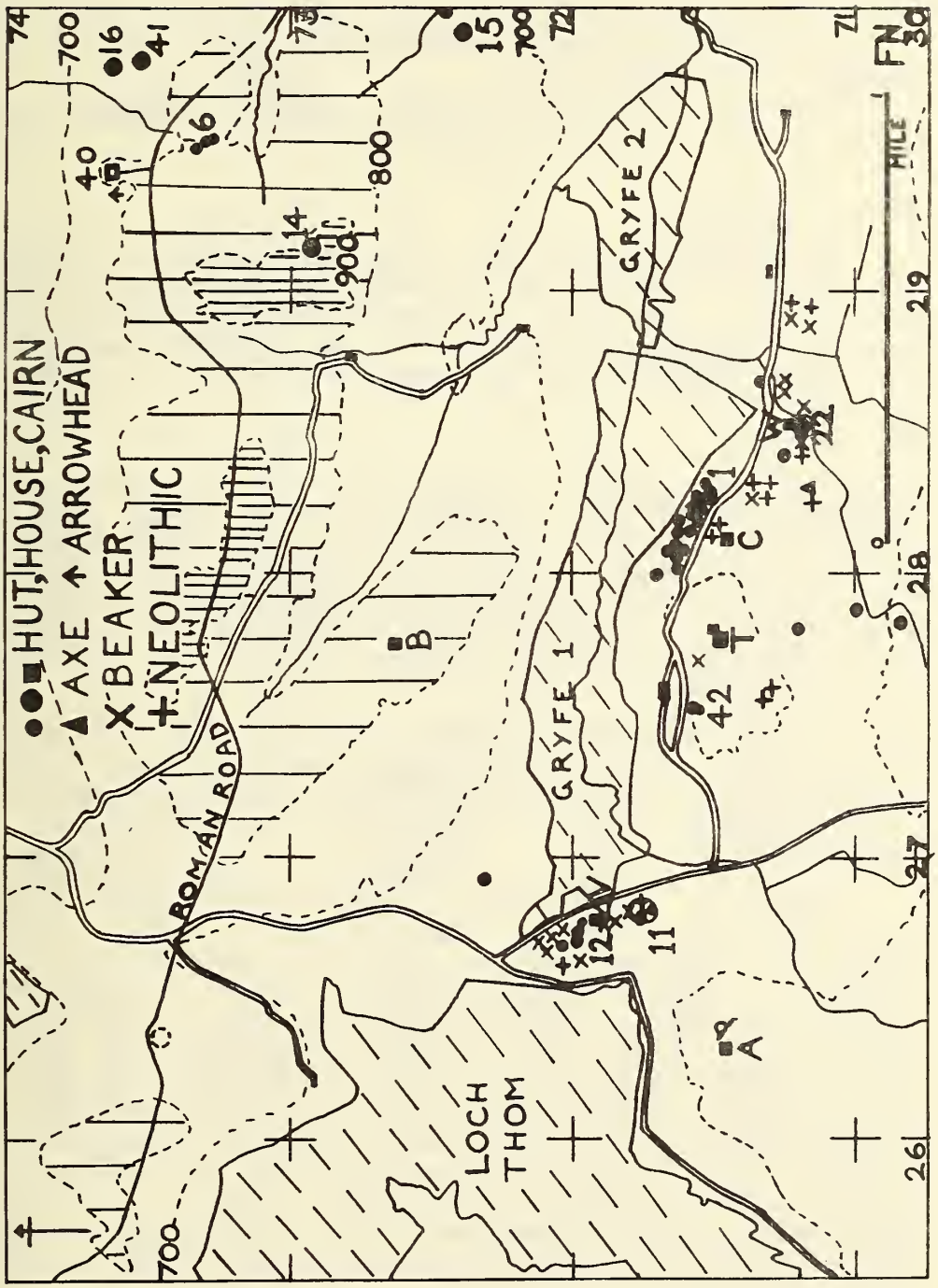

Fig. 1

The Beaker and Late Neolithic Sites at Gryfe Reservoir, N.W. Renfrewshire.

the cordon the decoration is of faint left down to right grooves, crossed right to left by deeper bolder grooves. 2-3. Sherds of two twisted cord beakers.

Artifacts: A grey flint thumbnail scraper; a steep sided quartz scraper; a quartz hammer stone.

OPEN SITE 1.

Sherds: 1. Fragment of twisted cord beaker. 2. Carinated sherd of smoothed red on dark brown ware with smoothed inner surface. The sherd is broken along the edge of a groove beneath the carination. It appears to be from the bulge of a B1 Beta beaker as defined by Fox *(Note 8)*. *(Fig. 2: 6)*.

OPEN SITE 2.

Sherds: 1. Sherd of hard gritty red brown ware, outer surface partly smoothed, containing numerous quartz grits but otherwise not dissimilar to ware classed at Knapps as Late Neolithic (Knapps fabric 2) *(Note 9)*, and similar to Site B, 1. 2. A sherd of a gritty black ware, sharply carinated with red brown outer coat (as Knapps fabric 3) *(Fig. 2: 7)*. A similar sherd and a flat sherd of the same ware came from just within the homestead (22).

Artifacts: Thumbnail scrapers of black and grey flint. Three obsidian cores; a microlithic blade and three flakes of obsidian, of the dark bottle green type found on Lurg Moor.

OPEN SITE 3.

Sherds: 1. In 38 sherds, a thick very rough black ware vessel with grey buff to light brown outer surface (Knapps fabric 1b), and flattened, inverted, and inbevelled rim, two sections of which are illustrated *(Fig. 2: 13)*. Several body sherds bear incised lines *(Fig. 2: 14)*. 2. In 125 sherds, mostly minute, a thin black smoothed buff coated vessel with flat inverted rim, probably bowl shaped with flattened base. A short distance below the rim is a fine incised line *(Fig. 2: 17, 18)*, while body sherds bear round, oblong and triangular pits *(Fig. 2: 19,20)*. 3. A sherd of the gritty red brown ware of OS2 but with thin smoothed black outer surface. 4. Several beaker sherds, small, undecorated. 5-7. Rough brown to black ware with bright red surface in groups of small sherds at three different places.

Artifacts: A closely trimmed steep-sided scraper of brown flint; the beautifully fashioned awl *(Fig. 2: 26)* in white flint, plano-convex with fully treated reverse surface and abruptly trimmed edges suggestive of Mesolithic technique; yellow flint thumbnail scraper (as Lawpark, *Fig. 3: 13)*; a

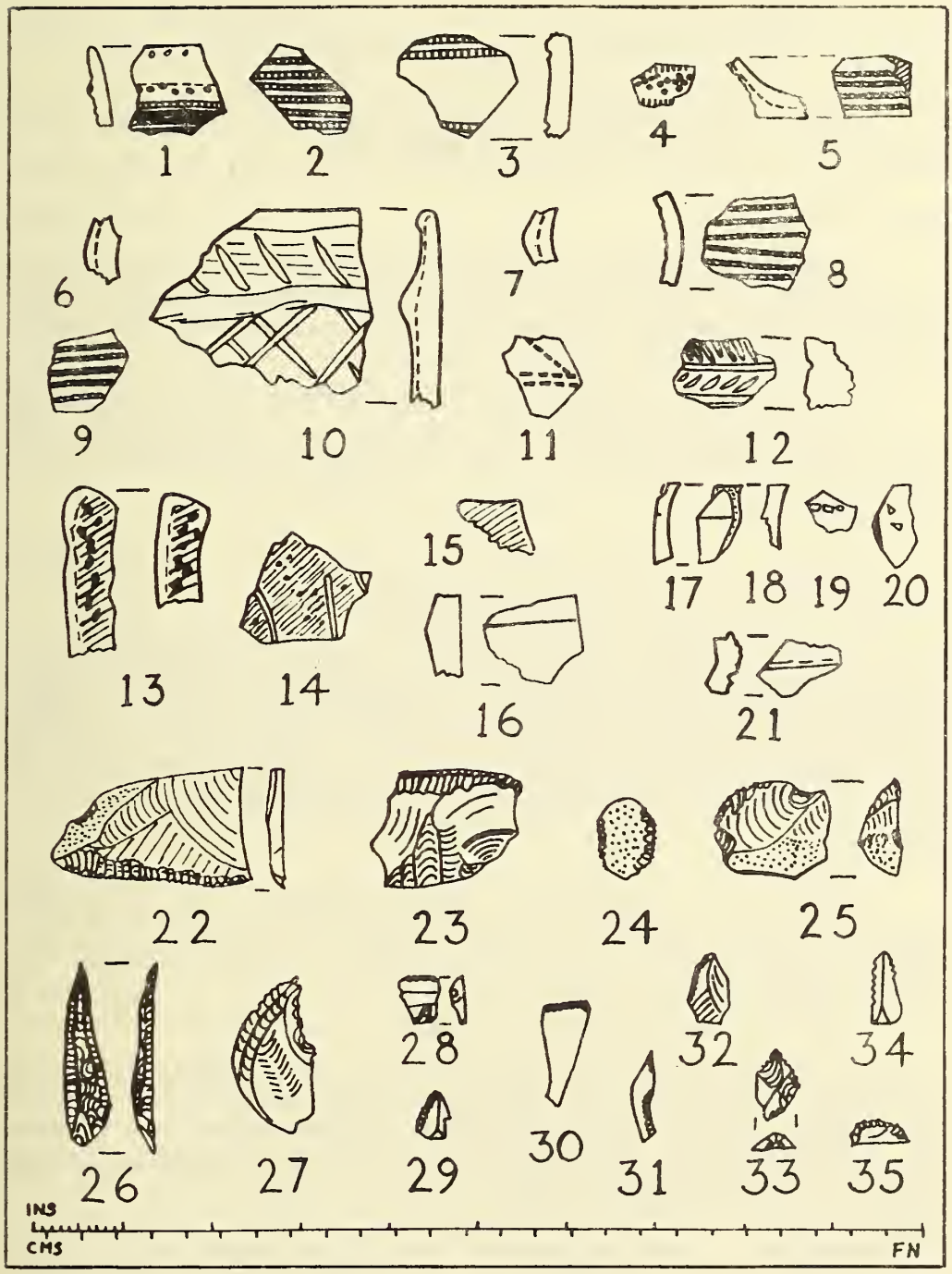

Fig. 2

Sherds and Flints from Gryfe Reservoir Sites

quartz scraper-point *(Fig. 2: 27)*; a trimmed quartz blade; two white flint scrapers; two small obsidian blades, one finely trimmed.

From a low ridge to north-west came a blue-grey flint thumbnail scraper and a quartz hammer stone.

OPEN SITE 4.

Sherds: 1. Sherd of black ware, 9mm thick with smoothed surface (Knapps fabric 10). 2. A sherd of poor brown to grey ware with buff coat. 3-4. Sherds of two beakers, one of twisted cord pattern.

Artifacts: Flat fragment of white flint with clean edges as fractured, but with the end abruptly and closely trimmed in microlithic fashion *(Fig. 2: 30)*. A flake of obsidian.

OPEN SITE 5.

Sherds: 1. Several sherds of black ware as OS 4. 2. A sherd of beaker. 3. Two beaker sherds.

Artifacts: From the west end of the ridge came a large flake of grey-white opaque flint, 3.1 by 2.6 by 0.9 inches, roughly trimmed on all sides; a lignite disc, roughly rounded 1.7-1.8 by 0.3 inches. From the south edge of the site came the attractive little celt *(Fig. 3: 1)* of hard grey stone; a flake of obsidian, and a small obsidian point *(Fig. 2: 29)*.

OPEN SITE 6.

Sherds: 1-3. Sherds of three beakers, one with small punctulations, one with hyphenated decoration in parallel and oblique lines *(Fig. 2: 11)*, both 8mm, and one twisted cord sherd 5½mm thick.

Artifact: A quartz side scraper.

From the low ground to west came a fragment of lignite bracelet *(Fig. 3: 2)* of lenticular section. Also of lignite was a bead *(Fig. 3: 3)* from beside a mediaeval turf and boulder dyke (NS28207120), and possibly disturbed by its construction. Neither artifact was in situ.

OPEN SITE 7.

Sherds: 1. Two sherds of thin black ware (as OS4) with buff surfaces.

Artifacts: 1. Oblong grey flint knife 2.3 x 1.2 inches, two white flint scrapers, one steeply trimmed; a small white flint point with blunted hollow in one edge *(Fig. 2: 31)*.

OPEN SITE 8.

Sherds: 1. Sherd of twisted cord beaker *(Fig. 2: 8)*. 2. Sherd of red brown coated black ware (as *Fig. 2: 7*, OS2).

Artifacts: A black flint knife *(Fig. 2: 23)*, with flat edge opposite the trimmed edge (same type as *Fig. 2: 22*, OSC).

OPEN SITE 9.

Sherds: 1. Four sherds of thin black ware (as OS4). 2-3. Sherds of two twisted cord beakers. 4. Sherd of very gritty light red brown ware with light red outer surface and patterned with a herring bone of diagonal incisions between rounded grooves *(Fig. 2: 12)*. The inner surface is missing.

Artifacts: A quartz scraper; a quartz point; a small edge trimmed blade of white flint; two white flint cores.

The site also produced fragments of two mussel shells.

OPEN SITE 10.

Sherd: 1. Sherd of red-brown coated black ware (as OS2).

Artifacts: A quartz side scraper; a neatly flaked steep quartz thumbnail scraper; a small grey flint tanged point (as *Fig. 2: 32*, OS10, obsidian); a finger and thumb quartz hammerstone 1.8 inches long. A similar stone was found on Lurg Moor. From the moor to west came the central portion of a small rectangular hone in greenstone. From moorland between OS9 and OS10 came four small sherds, probably of beaker, and a small blade of obsidian.

OPEN SITE 11.

Sherds: 1. Carinated sherd of brick red ware with little grit *(Fig. 2: 16)*. 2. Sherd of gritty buff on red ware. 3. Sherds of a gritty buff on dark grey ware.

Artifacts: A small lignite disc, 1cm in diameter. A small fragment of lignite of D section; a lemon-slice scraper of quartz; an obsidian blade 0.9 inches long, used as a side scraper; a scraper of a hard grey-white stone with facetted edges, possibly struck from a disused celt; two flakes of obsidian; a small white flint tranchet derivative *(Fig. 2: 28)*. On the long oblique edges are opposed percussion bulbs, the narrow end is minutely trimmed, the flat edge blunted. From moor to west came a white flint scraper *(Fig. 2: 25)*, and a flat rim sherd of crumbling black ware with grey-buff surface *(Fig. 2: 15)*, as Knapps 1b.

OPEN SITE 12.

Sherds: 1. Frags. of a soft red ware vessel with little grit. A wide finger channel on the outer surface bears faint traces of a groove or incised line; possibly beaker.

Artifacts: A steep quartz scraper; two obsidian cores; eight obsidian flakes; an obsidian point *(Fig. 2: 23)* and a trimmed blade *(Fig. 2: 34)*. Further flakes of obsidian came from beside Garvock Lodge hut (42).

LURG MOOR

A considerable area of the ridge upon which the Roman fortlet (40) is situated is stripped of cover to the bare rock, or the surface of glacial brash. This may be the result of Roman activity in rampart and road making. From this ridge along its entire length between fortlet and main Roman road to the south *(Fig. 1)* flint and quartz artifacts have been collected. These include quartz hammer stones, an anvil stone, finger and thumb hammers, a section of a polished stone axe of hard grey stone, re-used as an anvil, and flint knives and scrapers. Where observation was possible it could be seen that the horizon was the surface of the glacial brash, but several tools came from the bottom of peat in marshy hollows. This supports the evidence from Gryfe sites that peat was beginning to form when the settlements were established. Of particular interest are small implements of the same dark green obsidian as found on the Gryfe sites *(Fig. 3: 23-25)*, and a white flint point *(Fig. 3: 26)* all comparable to Gryfe finds *(Fig. 2: 29,32,33)*. A quartz scraper flaked at one edge and with concave end *(Fig. 3: 20)* compares with a tool, also of quartz, from Lawpark *(Fig. 3: 21)*. Also from Lurg Moor was the buff chert b + t arrowhead *(Fig. 3: 28)*. This is compared with a fine specimen in white flint from Lochwinnoch *(Fig. 3: 29)*, and one in dark green obsidian from Scroggie Bank, NS25087388, *(Fig. 3: 30)*. Another was found beside Loch Thom. All might be devolved from leaf shaped arrowheads, none being of the strictly triangular outline. From just outside the hut (6) on Lurg Moor came a finely pressure flaked scraper, the bulbar end of which was blunted along the obverse edge.

LAWPARK-EAST GREEN
(NS343679-NS335692, diagonally)

Artifacts have been collected from fields on both sides of the Green Water for about half a mile, and for a like distance north from the river *(Note 10)*.

Microlithic technique is seen on two notched artifacts from Lawpark *(Fig. 3: 8,11)*, in yellow and grey flint, while one scraper of white flint *(Fig. 3: 15)* is abruptly, almost bluntly trimmed. One tranchet derivative of dark grey flint

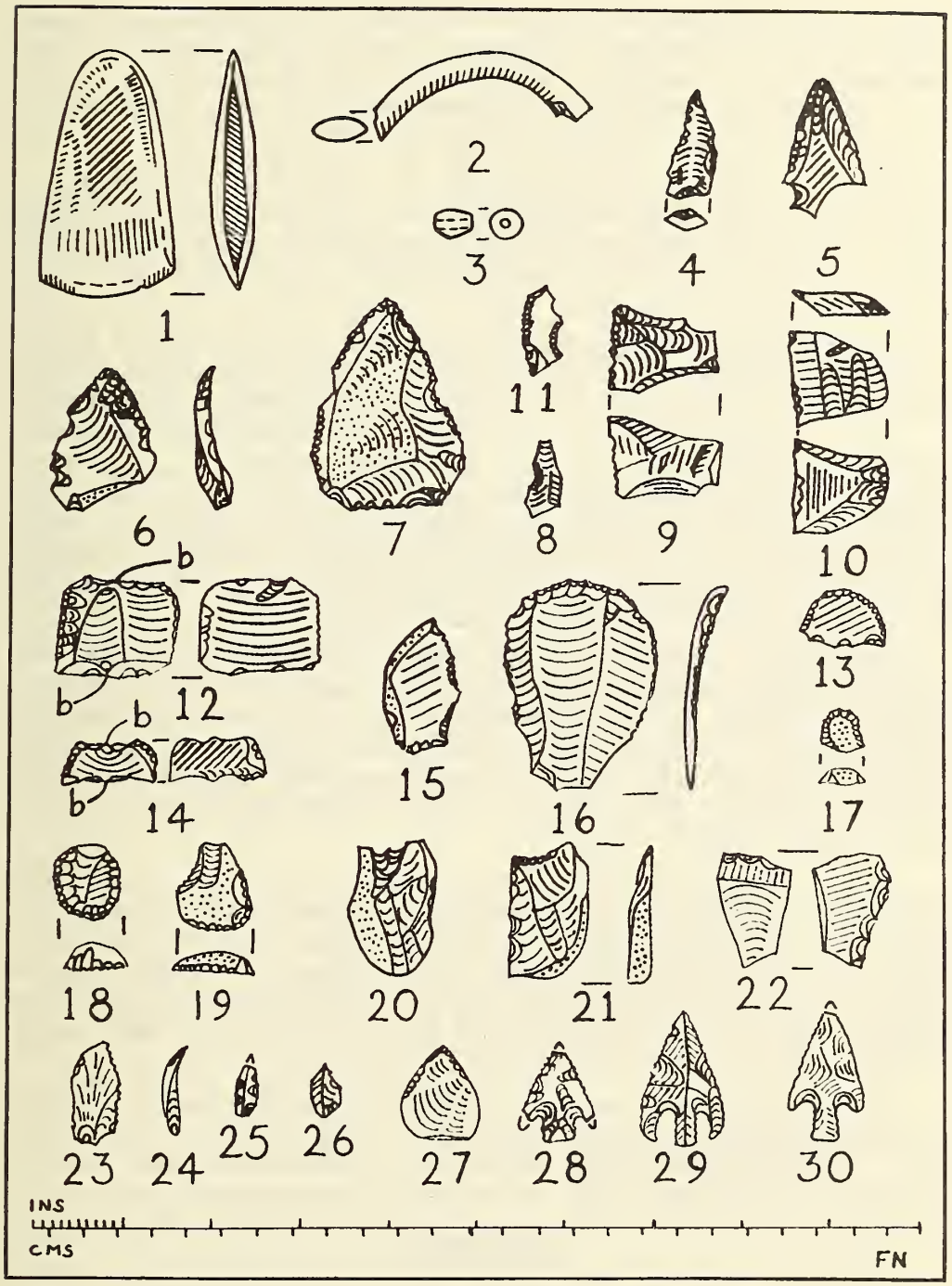

Fig. 3

1 - 3, Gryfe Reservoir; 4-19,21,22,27, Lawpark; 20,23-26,28, Lurg Moor; 29, Lochwinnoch; 30, Scroggie Bank.

(Fig. 3: 10), compares with a devolved tool trimmed along one long edge on the reverse, in quartz *(Fig. 3: 22)*, while a third simulating the tranchet, also of dark grey flint *(Fig. 3: 9)* is trimmed along the obverse forward edge and round one point. From such may have developed tools like *Fig. 3: 21*.

None of the Lawpark tranchets has the opposed percussion bulbs of the Gryfe microlith *(Fig. 2: 28)* but two tools which exhibit this feature are illustrated, one in grey-black flint *(Fig. 3: 12)*, the other, a "spokeshave", in black flint *(Fig. 3: 14)*, one of two.

Not represented at Gryfe or Lurg Moor are the hollow based points of quartz and white flint *(Fig. 3: 4)*; nor the triangular knife-scrapers, one of black and one of white flint *(Fig. 3: 5-7)*, one simulating a lop-sided "arrowhead", but with the hollow untreated *(Fig. 3: 5)*, a second naturally lop-sided *(Fig. 3: 6)* but possibly selected for shape *(Note 11)*. Two arrowheads of white flint are leaf shaped and dressed on both faces, one *(Fig. 3: 27)* rather perfunctorily trimmed. A third of reddish flint and similar to the point *(Fig. 2: 32)*, is neatly fashioned with short incipient tang.

Thumbnail, round and half round scrapers are common. A beautiful spatulate scraper-knife in reddish flint *(Fig. 3: 16)*, was matched in the same medium but of poorer workmanship, at Lurg Moor. Illustrated are the smallest Lawpark scraper, in white flint *(Fig. 3: 17)*, a larger specimen, also white *(Fig. 3: 18)*, one in quartz *(Fig. 3: 19)*, and a thin half round in white flint *(Fig. 3: 13)*.

Apart from those illustrated Lawpark and East Green have yielded 29 quartz scrapers and knives, and over 150 artifacts of flint, excluding cores. Flint is mainly white, yellow, or black to dark grey. One steep sided scraper of pitchstone is present, a similar tool of agate, and a blade of tachlyte. An awl, as *Fig. 2: 26* in white flint is of inferior finish, while a small saw is of red flint.

Hammerstones are common, several in quartz; while Lawpark has produced a small basalt slab with a single cup in each face, and a polished stone axe, *(Note 12)*. An axe from East Green, possibly of Stake Pass ash is in the National Museum *(Note 13)*.

DISCUSSION

Almost the entire tract south of the Gryfe *(Fig. 1)* has been trenched by the Forestry Commission. The trenches have been carefully scanned, and it was seen that, south of the huts and open sites, the peat preserves the remains of a copse - wood of birch and hazel; whereas except in deeper peaty hollows, burnt wood is found throughout the occupation zone, not only

where sherds or tools occur. That the woodland should have failed to spread along the riverside is improbable, and if the burnt wood is evidence of clearance, then it was presumably towards settlement of intended duration, involving houses.

The open settlement in its very extent suggests a lasting occupation by one group. Well fashioned beakers and microlithic obsidian blades and flakes are common factors, and by association co-date the several types of Late Neolithic rough ware *(Note 14)*. The fine finish and prevalence of the corded ware, the white coating of the Site C beaker, and the decoration of the Site B Rinyo-Clacton vessel, close in tradition to that which influenced Beacharra ware, suggests an early beaker settlement. This may be supported by the presence of round cairns and the possible degenerate chamber (W).

The huts are of a type, mostly round, though Garvock Lodge (42), the huts on Sites B and C, and the larger homestead house (22) are "oval". Their heavy walls and small size have in general prevented the plough's reaching the floors, and apart from sherds from the homestead, and flints from the large circle on Site C, no dateable material offers. Nevertheless, as excavation at Knapps has shown *(Note 15)*, to avoid the risk of fire, cooking might be done out of doors, especially in the case of the smaller huts. In view of the distribution of hut and open site, the conclusion that they are aspects of a uniform occupation is very probable. The sherd from the homestead relates it at least to the open sites, while the small roughly trimmed scraper from the Site C circle is not out of place in the assemblage.

While, too, lignite discs have been associated with beakers *(Note 16)*, and the small lignite bead is acceptable, the fragment of bracelet of lenticular section poses a problem. Its position, however, close to lazy beds associated with a rectangular house, NS28407138, of a size with those on Site A *(Note 17)*, one of which (X) produced sherds of a 15th century pitcher, renders it a possible mediaeval loss.

It has been objected that there is "no demonstrable association between the finds and the structures mentioned".

As the excavations planned to test this precise question have been prevented by afforestation we have had recourse to logical probability as indicated below.

a) Stratification

Finds were not merely collected; but their positions in the upcast closely examined, especially in their close relation to an iron pan layer which separated peat from a spread of

glacial brash, from the surface of which all came, apart from the beaker sherds specifically mentioned as being within peat, and many from a thin occupation layer surfacing the brash which over wide areas is burnt a bright red in association with much burnt wood. Nowhere was there any other stratification.

Further, where several sherds were upcast, the trench bottom was tested with the trowel. At O.S. 3 especially, all finds are from within an unctuous black layer which securely associates all finds from that site, and by type and inter-association relates them with all other sherds, flint, and obsidian, from the entire area. Thus either the finds relate to the huts, or the hut occupants owned nothing, or lost nothing out of doors.

b) Area

The entire area has been quartered, especially the gap between Sites 11 and 42, where neither structure nor find was located, as was the case in the considerable area south and south-west of the sites; in an extensive area along the south-east shore of Loch Thom, an equally extensive strip along the east bank of the Rottenburn, south of Loch Thom, and a closely drained area, some 600 by 400 yards west and south of Ladymuir. In short, in a considerable acreage of moorland, closely inspected, sherds and sites group together in a few localised, closely situated spots.

c) Re-occupation.

In the occupied area birch twigs and fragments of trunk, fresh and unburnt are contained in the bottom of the peat, but their size is conspicuously smaller than the remains to the south. Thus some re-establishment of the natural cover obtained and by the nature of the woodland, once a cleared area had been evacuated, this would be rapid. For example, in a clearing due to fire among pines on Inchcailloch, Loch Lomond, already, in little more than a generation, birch and alder and a short scrubby growth have occupied the area. In an area exclusively of birch and hazel this regrowth would be so rapid that recognition of a once cleared area would be difficult within a hundred years. Recognition of a series of sites would be remarkable, and if effected, of no chronological archaeological significance. There remains the possibility of cultural difference.

d) Analogy

In view of the possible disparity of east and west beaker settlement in Scotland, a west coast analogy must be sought. Huts similar in form and in situation, topographical and ecological, have been excavated at Muirkirk, Ayrshire. These have

produced beaker sherds and rough wares in patent association.

In view of the above it may be conceded that there is indeed a very probable, if not completely inevitable association between structure and find.

At Lawpark which has produced neither sherd nor evidence of habitation, while a small microlithic element is present it is proportionally less than at Gryfe Reservoir, and obsidian is completely absent. On the other hand tranchet derivatives in dark flint, and hollow based points are present, and a scraper of pitchstone. It seems that the Lawpark - East Green facies is of a Late Neolithic - Bronze Age culture removed in time or tradition from that at Gryfe Reservoir, but as the former finds are all from ploughed ground, and not in situ, we cannot be certain that we deal with one culture or with one period.

It may be noted that while rough wares from Gryfe Reservoir sites are akin in fabric to wares from the Late Neolithic homestead at Knapps, the abundance of beaker sherds and the form of the homestead (22) point to the Gryfe sites being of later date. If so, if the suggested sequence of house development prompted by the Knapps excavation hold good, *(Note 18)*, it seems relevant to inquire whether the development from Neolithic rectangular to Late Bronze Age oval or round construction might not have been advanced by Beaker contacts.

Addenda: Gryfe Reservoir (1968-1972).

Further scrutiny has revealed inter alia a true lopsided point of thin dark brown flint, a smooth edged semi-circular knive, and a body-cordon with incised slashes above, below, and across the cordon.

Miss Kerr, 71 Forsythe Street, Greenock, retains a small axe found about 1922 on Mansefield Farm, on the north slope of Cairncurran Hill, c. NS296708. This is of the identical stone and technique of the OS 5 axe, supra, apart from the butt having been ground flat instead of rounded. Both have well ground flat edges. The Mansefield axe, 9.8cm long, by 2.15 cm at the butt and 4.3cm at the cutting edge, is slightly larger than the OS 5 example.

Sites.

Following two summers of drought, the water had fallen so low in the Gryfe Reservoirs that in 1969, to sustain the gravity pumping system, the Upper reservoir was emptied into the lower.

As a result the early parish and field boundaries following the edge of the original river bed could be mapped, and in several surveys with Mrs Anne Hallifax Crawford, County Archae-

ological Recorder, and with Mr. Harry M. Sinclair, the entire east, south, west, and the greater extent of the north banks were investigated in detail. The following sites have been recorded.

Mediaeval:

44. NS28407142. A roughly D-shaped, 4 foot wide stone wall enclosing over 100 feet from east to west, has built against its inner north face, the vestiges of a 17 foot long build, round ended on the west (9 feet 8 inches) but straight walled on the east (7 feet), and entered at south-west. The south wall, east of this entrance is common to an annexed, overlapping, and precisely similar build. To the south, the enclosure wall continues under heather and appears to enclose the rectangular mediaeval house already recorded there, NS28407138 *(Note 17)*.

Prehistoric:

45. NS28117160. A stone-walled circle, 23 feet overall, 18 feet internally, has a 1 foot 6 inch wide entrance in the east, flanked by two boulders, the south one of which closes a chamber, 4 feet wide and 20 feet long. This is contained by the south-east arc of the hut and an outer wall, 3 feet wide, which curves round south and east. A 3 feet wide wall closes the west end of the chamber, but the outer wall continues west, and may have connected with a single-stone wall lying west of the circle, running north, then curving west. In the curve, NS28087168, wall footings suggest a subrectangular structure, 12 feet across.

46. NS26807210. A circular hollow contained by a 4 foot wide gravel wall, 15 feet across internally, is entered on south-south-east.

47. NS27647210. Weathering out from beneath peat, and founded in glacial brash is a group of four related structures. A circle, 23 feet diameter over a 4 foot wall has contiguous on the north an oval chamber, 19 feet east to west by 12 feet over a 3 foot 6 inch north wall. (Internally 19 feet by 8 feet 6 inches. Cf.No.45). Immediately north, an outline of persicaria, 4 feet wide over double ridges with concentric channel between, encloses a circular area, 27 feet overall. Some 20 feet east of this complex an independent circle is 29 feet over a 5 foot thick wall.

Undated:

48. NS28177163. North east of circle 45, enclosed within a single-stone wall circuit is a massively constructed rectangular build. The north wall, 25 feet long, is of boulders, 3-5

feet wide. Of the west wall 17 feet survive, while the east wall, interrupted by two gaps, continues south for 65 feet.

49. NS26807196. Comparable with the above, difficult to discern in a broken, eroded, boulder strewn land surface, is a build 66 feet east-west by 13 feet, with a shorter build 30 feet east-west by 11 feet, annexed on the north-west.

50. NS26837199. Of the above type, four contiguous enclosures aligned north-east to south-west have a common south-west wall. These measure; a) 21 feet by 8 feet; b) 35 feet by 14 feet; c) 39 feet by 14 feet, with a division wall 20 feet from south-west; d) 31 feet by 10 feet, with a division wall 15 feet from south-west. Entrances appear to be independent in the north-east ends.

51. NS26817200. West of the above, an apparent heavy clearance cairn, but strictly linear, and 65 feet by 15 feet, may be a filled structure of the same type. Beside this a hollow way passes along the east to ford the river to the north.

Unassigned:

52. NS28607180. Partly covered by the east barrage of the Upper Reservoir, a circular enclosure, 42 feet in overall diameter. Walling is vestigial.

53. NS26807190. Founded on brash, beneath peat, an enclosure, 46 feet east-west over 3 feet walls, by at least 38 feet north-south. This structure is prehistoric, but may relate to the large Celtic Round House Group, several of which lie close to the north bank of the Gryfe. Recent work has shown that associated pottery is similar to the late-neolithic wares of the Gryfe group, and probably derived from them, but the silicious element in the cultural context is predominantly quartz rather than flint. Their beginnings are tentatively assigned to the Middle Bronze Age, but their original form may be the simple round huts of the Gryfe A settlement. These will be considered in a separate paper. The narrow wall here, however, appears early.

NS269718. Two small cairns, 15 feet by 9 feet; and 14 feet by 10 feet, with central circular arrangement of stones. The former at least is probably field clearance.

NS269719. A small cairn, 15 feet by 9 feet.

Footnotes

1. *P.S.A.S.*, XCV (1961-62), 162.

2. NEWALL, F. *Excavation of Prehistoric and Mediaeval Homesteads at Knapps, Renfrewshire* (1965). Paisley.

3. D. & E., 63, 42-3; 64,47; 65,34.

4. Much valuable work was done in patient survey by Malcolm McNeill. The survey was completed with the assistance of Dr. William Lonie, Messrs D. MacKinnon, W.O. Black, G. Todd, and H.E. and A.S. Newall.

5. Chiefly by Duncan MacKinnon and William O. Black.

6. Beakers with white infilling are recorded from Broomend, Inverurie; Persley Quarry, Old Machar; Dairsie. *P. S.A.S.*, LXVIII (1933-34), 151, 152, 171-2.

7. All struck flakes and fragments are excluded, but finds of obsidian, a common factor, are listed.

8. FOX, Sir Cyril. *Life and Death in the Bronze Age* (1959), 60,69,Pl. 17a. Into this group fits our beaker OSC, 1: and types of barbed and tanged arrow-heads in Renfrewshire accord with the Welsh association - Cf. Fox, Pl, 20a, 5,7,8.

9. Op. Cit. 23.

10. All finds have been listed by field and find spot and a catalogue can be supplied, but as all appear to be of one period they are treated here as a single group.

11. For a true lop-sided 'arrowhead' found near Knapps, vide *P.S.A.S.* LXXXI (1946-47), 179-82.

12. Published with the Knapps Finds. Op. Cit., 41,51, Pl. 9.

13. *P.S.A.S.*, LXXXIV (1949-50), 229.

14. As at Muirkirk, Ayrshire, where the same types of beaker appear to be present. *P.S.A.S.*, LXI (1926-27), 272-3, Figs. 4-6.

15. At Knapps all cooking was done outside the main house in cooking pits within roughly rectangular huts which, at least within the palisaded enclosure, may have been screened off kitchens, perhaps unroofed.

16. *P.S.A.S.*, LXVIII (1933-34), 188.

17. *P.S.A.S.*, XCV (1961-62), 161, Fig. 2.

18. Op. Cit., 18.

Mr. Frank Newall, Ferniebank, Kilmacolm, Renfrewshire.

NEW RECORDS OF NATTERER'S BAT *Myotis nattereri* IN SCOTLAND

By CARMEN PLACIDO
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Introduction

On 18th January 1972 the author, accompanied by Mr. M. Baxter, visited a tramway tunnel in a disused Perthshire slate quarry about 3km north west of the village of Aberfoyle, to search for bats. The quarry originally produced blue, grey, green and purple slate and also a mottled type termed 'tartan' but is no longer utilised for slate production, although the debris is occasionally extracted for use as road metal. In the late 1930s sixty men (16% of the total Scottish work force for slate quarrying) were employed and the annual production of full sized slates was in the order of 1,200,000 - about 18% of the total Scottish output (Richey and Anderson, 1944). The accessible length of the tramway tunnel is now 144m and it is blocked at its innermost point by infill from a vertical shaft. It has only one entrance, which has a north-easterly aspect and is approximately 1.5m square. The entrance is flooded, to a maximum depth of 0.35m, for a distance of approximately 22m and the tunnel averages about 1.85m high for most of its length.

Details of Records

In an offset cavern, about 8m high and 40m in from the entrance, the author found a bat, in a torpid state, clinging head downwards in a wide vertical crevice about 1.75m from the tunnel floor. The animal was identified as a Natterer's Bat *Myotis nattereri* and on being removed from its position this was confirmed by the presence of a fringe of stiff, curved hairs on the posterior margin of the interfemoral membrane; and the tragus which was more than half the length of the ear, (see *Table 1*), as described by Blackmore in Southern (1964). The bat, an adult male, was held in captivity for 36 hours during which it was photographed and measured *(Table 1)* using the methods described by Stebbings (1967) and shown to Dr. J.A. Gibson, E.T. Idle and J. Mitchell. Details of the record were submitted to R.E. Stebbings who accepted the identification (*in litt.*). Before being released in the tunnel the bat was marked by clipping the hair on the back of its head.

Subsequent visits to the tunnel on 20th February and 12th March 1972 resulted in an immature male *(Table 1)* and two unsexed specimens of the same species being located, along with a female Common Long-eared Bat *Plecotus auritus* and a number of Daubenton's Bats *M. daubentoni*.

Table 1: Measurements (mm) of *M. nattereri* from Perthshire, 1972.

	Forearm	5th Digit	Wingspan	Ear	Tragus
Adult Male (18.1.72)	40.6	50.0	257.0	15.9	9.9
Imm. Male (20.2.72)	38.4	48.5	255.0	-	-

Discussion

There have been only three published records of *M. nattereri* in Scotland - all of them dating from the nineteenth century but Barrett-Hamilton (Barrett-Hamilton and Hinton, 1910-21) and Corbet (1971) considered all three records doubtful, mainly through a lack of adequate documentation.

The first alleged occurrence of the species in Scotland was of an immature male apparently presented to the British Museum by George, Duke of Argyll (b. 1823: d.1900) and labelled 'Inveraray 1858'. The record was first published by Dobson (1878) who wrongly described the specimen as an adult female. This mistake was rectified by Barrett-Hamilton (Barrett-Hamilton and Hinton, 1910-21) who also searched the Duke's correspondence at the British Museum but could find no reference to the matter. More recently Dr. J.A. Gibson *(in litt.)* examined the same Duke's correspondence and notes held at Inveraray Castle but with a similar lack of success. It is also worthy of note that Evans (1893) stated that the Duke had no recollection of the matter. The record was omitted by Alston (1880) but Harvie-Brown and Buckley (1892) gave more details and indicated that the specimen had been received at the British Museum "in the flesh and was put into spirit". Watt (1901,1905) and Millais (1904) merely repeated some of the information already known.

The second report concerning *M. nattereri* in Scotland was brought to the attention of Harvie-Brown (1881) by Robert Gray who alleged that the species had been discovered in 1880 "in dozens in the hole of a tree" and "is in plenty near Dalkeith, Midlothian". Nothing further was added to this information by Harting (1889) or Harvie-Brown and Buckley (1892) until Evans (1893) made extensive enquiries and concluded that the circumstances were not altogether satisfactory. He made the point that it seemed strange that Gray, who was always so solicitous for the full and proper recording of rarities, should have let

the subject drop if he was convinced of the correctness of his identification. Later, Evans (1901) received, from the widow of Gray, a preserved skin of *M. nattereri*, found by her amongst her husband's possessions. There was no label attached to the skin, but Evans assumed, without adequate proof, that it was referable to the supposed Dalkeith record. Later Evans (1907) again returned to the subject, repeating the assumption made by him in his previous paper. Millais (1904) questioned the Dalkeith record and thought that the species referred to was probably *M. daubentoni*.

The third record, of a specimen in alcohol mentioned by Barrett-Hamilton (Barrett-Hamilton and Hinton, 1910-21), was one which Coward believed he received alive from Montrose, Angus, in 1895; an error on the label preventing him from making a definite statement.

The recent records from Perthshire are the first published occurrences of *M. nattereri* in Scotland this century, although this may merely reflect a correlation between the paucity of observers and the difficulty generally experienced in locating and identifying bats.

On the European continent *M. nattereri* has a wide distribution, typical of a temperate zone species, extending northwards into Sweden (Brink, 1967). The most northerly recent record of the species on the British mainland, prior to the Perthshire records, was of an animal captured in Northumberland in 1967 near the national border (Corbet, 1971). This is approximately 160km south-east from the Perthshire locality and about 100km north of the nearest other record from northern England - near Lancaster (Corbet, 1971), although Corbet considers that the species is widely distributed throughout most of England. Allowing for such contingencies as the dearth of observers it seems possible therefore that *M. nattereri* has a wider distribution in Scotland than one published record might otherwise indicate.

Acknowledgements

I wish to thank R.E. Stebbings who has given much assistance and encouragement and who provided opportunities enabling me to gain experience in the field identification of many bat species. Acknowledgements are also due to M. Baxter whose diligent enquiries resulted in the tunnel being located.

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FISH MORTALITY IN FORTH AND CLYDE CANAL, JUNE 1972

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The heaviest fish mortality yet recorded in Scotland occurred in the Forth and Clyde Canal during June 1972. The following is a brief account of the incident, together with a report on the cause of death by Dr. R.J. Roberts of Stirling University and also the results of chemical analyses carried out in the Board's laboratories.

Summary of Events

The presence of dead fish was first reported to the Board on the afternoon of Sunday, June 11th, by Mr. W. Webster, sanitary inspector for Clydebank Town Council. An immediate inspection by the Board's staff established that the mortality was limited to a six-mile length of the canal between the Bowling basin and the Yoker overpass near New Kilpatrick. An estimated 10,000 roach were already dead and many more were distressed. Enquiries revealed that fish had commenced dying several days earlier and fish continued dying in large numbers up to June 16th.

Removal of the dead fish became a major problem for Clydebank Town Council and Mr. Webster had to call on the Royal Navy to provide boats and personnel to assist his staff and staff of the British Waterways in removing the dead fish. Altogether some 16 tons of fish were removed and incinerated.

It has been estimated that well over 100,000 roach died in the canal and it is significant that no other species were involved, though healthy perch, sticklebacks and goldfish were seen throughout the affected stretch of water, while pike and eels were also known to be present.

This section of the canal is fed by water passing over a weir from a higher level section near the Yoker overpass, at which point there is also a discharge of cooling water at 1,500 g.p.m., from a tyre factory. There is a very slow rate of flow towards Bowling, some two weeks being required to traverse the six-mile length, and it is therefore significant that fish commenced dying almost simultaneously along the whole length.

Investigations Carried Out by C.R.P.B.

During the initial investigations on June 11th, specimens of dead fish and canal water were taken for examination in the

Board's laboratories. Subsequently, as the scale of the mortality became evident, more intensive investigations were carried out. Further samples of canal water and the cooling water discharge were analysed for cyanide, pesticides, P.C.B's and toxic heavy metals in addition to the routine chemical analyses.

Specimens of both dead and healthy fish were dissected and preserved by freezing and in formal saline solution. Some of these were sent to the Aquatic Pathobiology Unit at Stirling University, while others were chemically analysed in the Board's laboratories and the Department of Veterinary Pharmacology, University of Glasgow.

Further investigations in the canal included diurnal variations and stratification of dissolved oxygen, a biological survey and the collection of bottom mud samples for analysis. A thorough inspection of the tyre factory was carried out to establish whether contamination of the cooling water could take place and samples of chemicals used in the factory were also collected. Electrical fishing gear was used to obtain specimens of healthy roach from an unaffected part of the canal.

Conclusions

There seems to be little doubt that the immediate cause of death was a very severe infestation of the gills and skin by the protozoan parasite *Ichthiophthirius spp.* as shown in Dr. Robert's report. This parasite is normally present in roach in small numbers and the exact reason for its rapid increase in this instance is not clear. Low oxygen levels and temperatures above 17°C. may be sufficient to initiate an epidemic but other factors which weaken the fish could also be involved.

Routine analyses of the canal water and of the cooling water discharge revealed nothing abnormal. However, the canal is heavily overgrown with weeds (which could lead to overnight oxygen depletion) and temperatures up to 17°C. were recorded. The minimum oxygen level recorded was 71% saturation and it has not been proved that lack of oxygen was a significant factor.

The high density of the roach population suggests overcrowding as a possible factor and it is known that the fish have been heavily infested with fish lice for some years, probably as a result of overcrowding.

The most surprising result of the investigations was the presence of apparently high levels of toxic metals in the flesh of both dead and healthy fish *(Table 1)*. It is to be noted that generally higher levels were found in healthy fish from an upstream section of the canal and that the amounts in the canal water were probably too low to account for this.

Later analyses of fish and their gut contents *(Table 2)* indicated that the roach were probably obtaining the heavy metals through the food chain. Analyses of bottom mud *(Table 4)* showed high concentrations of metals, especially zinc, in the vicinity of the cooling water discharge. The results suggest that, in the past, compounds of zinc (which are used in the tyre industry) and of other heavy metals have entered the canal via the cooling water discharge but the results cannot be regarded as conclusive, since healthy roach from the upstream section of the canal were found to contain even higher levels of toxic metals in their flesh. Fish cannot migrate between the two sections of canal.

A further, long term, investigation of the canal is now planned and information is being sought on the background levels of toxic metals generally found in fish and the significance of such levels.

Appendix

a. Results of analyses for toxic metals carried out by Clyde River Purification Board laboratory.

b. Report by Dr. R.J. Roberts, Stirling University.

c. Report by Dr. J.A. Bogan, University of Glasgow.

APPENDIX

a) Results of Analyses for Toxic Metals Carried Out by Clyde River Purification Board Laboratory. (Tables 1-4).

Table 1 Analyses of Fish Completed on 16.6.72.
(Results in p.p.m. wet weight)

	Cd	Cr	Cu	Ni	Zn	Pb
Dead Fish A.....	0.98	tr.	0.73	1.5	13.4	2.0
" " B.....	0.44	Nil	0.22	1.8	13.1	1.3
" " C.....	0.20	1.3	0.63	3.1	14.4	tr.
Upstream fish A	0.27	0.19	1.34	2.3	52.9	2.5
" " B	1.0	Nil	tr.	4.0	34.0	tr.

N.B. No cyanide or phenol could be detected in the fish. The upstream fish were healthy specimens of roach from an unaffected part of the canal. Analyses were carried out on portions of muscle from the same position on the side of each fish.

Table 2 Analyses of Cooling Water Discharge and Canal Water
(Results in p.p.m.)

	Cd	Cr	Cu	Ni	Zn	Pb
1 Cooling water discharge	tr.	0.01	0.01	0.05	0.06	Nil
2 Canal water 300 yd. upstream	tr.	tr.	tr.	0.04	0.03	Nil
3 Canal water below discharge	tr.	tr.	0.01	0.05	0.05	Nil
4 Canal water at Kilbowie Road	tr.	0.01	tr.	0.08	0.04	Nil
5 Canal water at Dumbarton Road	0.004	0.01	0.03	0.03	0.07	0.04
6 Canal water at Bowling	tr.	0.01	0.01	0.05	0.04	Nil
7 Canal water at Erskine Ferry	0.036	0.01	0.04	0.04	0.10	0.05

Table 3 Further Analyses of Fish Completed on 19.6.72
(results in p.p.m. wet weight)

	Cd	Cr	Cu	Ni	Zn	Pb
Dead Fish 1.....	0.4	0.7	0.7	2.7	12.5	6.0
" " 2.....	0.25	0.5	1.9	6.2	30	3.7
" " 3.....	0.81	1.2	2.9	2.8	30	2.4
" " 4.....	0.1	1.4	0.5	2.4	26.5	4.7
" " 5.....	0.23	0.5	0.75	3.8	20	1.5
Gut Contents 1	0.26	0.05	3.4	3.4	97	2.0
" " 2	0.64	0.05	1.6	11.2	70	2.0
" " 3	1.25	0.05	6.3	8.75	93	2.0
" " 4	0.71	3.4	2.6	14.0	56	12.7
" " 5	----	1.5	9.1	10.6	109	15.1

Table 4 Analyses of Bottom Mud from Canal (results in p.p.m. dry weight)

	Cd	Cr	Cu	Ni	Zn	Pb
1 Shingle beach opposite discharge	0.94	9.0	17	14	132	19
2 Upstream of discharge, same side.....	26	66	685	287	4,080	655
3 50 yd. downstream centre of canal	15	100	420	131	9,000	820
4 150 yd. downstream centre of canal....	17	132	500	144	11,000	1,250

b) Report by Dr. Ronald J. Roberts, Director, Unit of Pathobiology, University Stirling.

Pathology Report

Case No R720072 Owner C.R.P.B.

Species 6 Roach

Sex 3 Female, 3 Male

Clinical Features Dying in canal. Gills degenerate. Very mucoid.

Report

These fish had very severely damaged gills and skin. The skin was hyperplastic, sloughing in places, and infected with Ichthiophthirius spp. protozoa. The gills, which showed the major histopathology, had very heavy infection with fish lice, minor infection with myxobacteria, and very heavy Ichthiophthirius infection. The gill lammellae were congested and their epidermis hyperplastic or absent. Such fish would find great difficulty in breathing at the best of times and if oxygen tension was reduced for any reason the difficulties in respiration would in my opinion be sufficient to kill the fish.

Ichthiophthirius is not usually a problem below 17°C but Roach are especially susceptible and large aggregations of fish especially if stressed by other factors such as lice, can be decimated in fish farms.

The parasite spends approximately half of its life cycle of 1-3 days on the fish and half off so is not necessarily easy to find at any moment in time so the numbers were very high in the present case.

(sgd.) R.J. Roberts.

c) Report by Dr. J.A. Bogan, Department of Veterinary Pharmacology, University of Glasgow.

Analysis of Roach

Acting on the instructions of Dr. Best, C.R.P.B., I the undersigned received samples of roach on Thursday 15th June. The fish were analysed for

1) Arsenic
2) Mercury
3) Lead
4) Organochlorine compounds

The muscle of the fish contained no detectable arsenic or mercury. The levels of lead were 0.94 ppm on dried weight (Dried wt = 16.93%). The levels of P.C.B. were in the region 0.05 ppm and DDT and Dieldrin were $<$ 0.01 ppm. All these levels are unlikely to have been the cause of death of these fish.

(sgd.) J.A. Bogan.

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THE MAMMALS OF RENFREWSHIRE

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There appears to be little written historical information on Renfrewshire mammals which is of any great antiquity. There is nothing of significance in the *Old Statistical Account* of the 1790s, and prior to this we have been able to find only a few scattered references in ancient documents, usually concerned with agriculture or the chase.

The earliest account of mammals in Renfrewshire of any real importance appears to be the *New Statistical Account* of 1845, where no less than nine Renfrewshire parishes give some mammal notes, with a total of twenty-six species being recorded. One of the parishes, Abbey parish (Paisley), in an extensive account of the natural history, actually lists nineteen mammals on the authority of a Dr. A.R. Young "formerly of this town, but now resident at Dunoon, - an individual distinguished for his knowledge in ..... natural science". This *New Statistical Account* contribution was quite outstanding for that period of time, but it should be realised that 1845, the date of the *New Statistical Account*, was only two years before the founding of the Renfrewshire Natural History Society. It is possibly not surprising, therefore, that the mammal notes in the *New Statistical Account* are so good, since interest in natural history at that time appears to have been much more highly developed in Renfrewshire than in many other counties. It also seems quite likely that this Dr. A.R. Young was Dr. Alexander Young (born 18th February 1802), the eldest brother of Morris Young (1822-1897), the Renfrewshire Society's founder.

In the accounts of Clyde mammals published by Alston (1876, 1880), a generation later by Boyd Watt (1901,1902,1905), and half a century later by Gibson (1954), Renfrewshire is of course covered, although specific reference to the county is not always made. The first attempt at a separate comprehensive account of Renfrewshire mammals was clearly the printed natural history list, including "quadrupeds", of Paisley and Renfrewshire published by Morris Young's original Society about 1860, closely followed by the manuscript 'Mammalia' list of 1871. Most unfortunately, however, all copies of these documents now appear to have been lost, although several members certainly remember them, but not in detail. The last remaining copies seem to have gone when most of the late A.M. Stewart's papers were destroyed almost immediately after his death. Stewart was a former Pres-

ident of the Society, and many of the Society's historical documents and original Morris Young papers were temporarily in his custody at the time of his death in 1948. Unfortunately this was not realised and these, too, were destroyed. In passing we should like to say that if anyone knows of the existence of either of these pamphlets the Society will be eternally grateful for permission to make copies.

At present, therefore, we must regard the list by Thomas Malloch and the Rev. Charles A. Hall, published by the Society in 1915, as the only separate account of Renfrewshire mammals which is still in existence. This was a good list, although even Malloch and Hall overlooked some previously published records of some importance. In 1946 a supplement to this list appeared in the Society's *Transactions* (Gibson, 1946). Other references to Renfrewshire mammals are rather scattered. From the latter part of the last century until nearly the present day a good few notes and short papers have appeared in local natural history journals, mainly the *Scottish Naturalist, Annals of Scottish Natural History, Glasgow Naturalist* and the *Transactions* of our own Society; several local parish histories have appeared, but with the notable exceptions of Kilmacolm (1907) and Neilston (1910) few of these have included useful natural history notes; a survey of Renfrewshire natural history given in the *Cambridge County Geography* series (Mort, 1919) was clearly taken from the Society's earlier paper, and not always accurately.

This account of Renfrewshire mammals, therefore, is based on our own notes during the past thirty-five years, on what we have been able to discover from a search of the previous literature, and on the cumulative Society records, and here we would like to express our thanks to the many members of the Renfrewshire Society who have contributed to the Society's records during the past half-century. We are also extremely grateful to a large number of landowners, farmers, foresters, trappers, gamekeepers and poachers, who have supplied us with a great deal of useful information over the years. In particular we should like to thank the many farmers who for several years regularly kept for our inspection the catches made by their farm cats; this was often the only available means of confirming our beliefs, and ultimately added greatly to our knowledge of small mammal distribution. We hope this can be regarded as a comprehensive account of the mammals of our county, although pressure on space has meant some compression of detail. Allowing for suitable habitat localities, however, the distribution of our mammals is fairly uniform, and we have tried to indicate any exceptions to this. If we have overlooked any published record we apologise in advance, and hope that this omission will be drawn to our attention, but we trust this will not occur often.

This is the first detailed account of Renfrewshire mammals to have appeared for some sixty years, and although our intentions have long been well known to all established naturalists throughout the county, it may be that the appearance of this list will stimulate other interested people to recollect incidents or details which can add to our knowledge. If anyone can significantly add to the following notes, therefore, we shall be very glad to hear from him.

The numbers given in brackets at the end of certain species are the Renfrewshire 10km squares (NS), taken from the mammal section of the *Atlas of Renfrewshire Vertebrates* (1970); it seems useful to repeat them here. The same symbols are used as in the *Atlas*: ordinary type means recorded in the square during the twenty years from 1951 to 1970; italics *(NS)* indicates recorded during the half-century from 1901 to 1950, but not later; italics *(NS)* indicates doubtfully recorded (or obvious escapes) during this century; species not recorded during the present century are not numbered. Only the Renfrewshire parts of overlapping squares are included. For easy reference, the numbers of all the Renfrewshire 10km squares are given below:

(NS 17 27 37 47 16 26 36 46 56 66 35 45 55 65 44 54 64)

In the following systematic list the arrangement and nomenclature largely follows the *Checklist of Palaearctic and Indian Mammals* by J.R. Ellerman and T.C.S. Morrison-Scott, (second edition, 1966), published by the British Museum (Natural History).

Order INSECTIVORA

HEDGEHOG *Erinaceus europaeus* Linnaeus, 1758

The Hedgehog has always been common and widely distributed throughout Renfrewshire; it was recorded from three parishes in the *New Statistical Account* of 1845. It is more commonly found around the cultivated districts, and on the outskirts of towns, where it is a common inhabitant of gardens, is very easily tamed, and is often kept as a pet; it appears to be relatively absent from the higher hills. In Renfrewshire the usual period of hibernation is from early November until the end of March, but the time may vary greatly, and Hedgehogs are occasionally found active during the winter.

An albino specimen of the Hedgehog was brought to Paisley Museum on 7th October 1945; it had been caught in a trap at Neilston. Others have been vaguely reported from time to time but we have no exact knowledge.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 -- 54 64)

MOLE *Talpa europaea* Linnaeus, 1758

Common and widely distributed throughout the entire county. Mole-hills are often found above the thousand foot line and have occasionally been found on the highest Renfrewshire hills above 1500 feet. The Mole was recorded from several parishes in the *New Statistical Account* (1845), and in Erskine parish it was recorded as one of the "greatest enemies the farmer has to contend with here, they are so abundant". Nowadays the Mole is still extremely common throughout Renfrewshire, and several mole-catchers are kept fully employed.

Piebald specimens have been recorded from several places throughout Renfrewshire and there are quite a few albinos on record. The well-known naturalist, the late A.M. Stewart, a former President of our Society, became extremely interested in the problem of variation in the colour of the Mole (see *Scot. Nat.*, 1933: 39-44). He did much of his original work on a collection of Mole-skins from the midlands of Scotland, but during the last fifteen years of his life, from 1933-1948, with the aid of local mole-catchers he amassed a considerable collection of Renfrewshire skins; these included a long series of piebald specimens and no less than four albinos.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 44 54 64)

PYGMY SHREW *Sorex minutus* Linnaeus, 1766

In former times the Pgymy or Lesser Shrew was little recognised, which presumably explains its absence from the old records; there is certainly no mention of it in either the *Old* or *New Statistical Accounts*. Any specimens which the average countryman came across were probably regarded as young Common Shrews, and the fact that it was seldom specifically recognised was well-known to Alston and Boyd Watt. Dr. Pride (1910) said "This species, which is quite a recent addition to zoological knowledge, is to be found in Cowden valley", and Hugh Boyd Watt (1905) said that "specimens have been taken near Paisley". Malloch and Hall in 1915 could not add to what had already been published, although they clearly considered the Pygmy Shrew to be much commoner than the meagre records at that time suggested. Just after the publication of their list a Pygmy Shrew was found dead "on the road near Craigends, Renfrewshire, on 8th September 1915" (Malloch, 1915), and Malloch himself believed he had found the skulls of Pygmy Shrews in Barn-Owl castings.

Nowadays the Pygmy Shrew is well-known to be widely and commonly distributed in all suitable territory throughout Renfrewshire, and in most areas our trapping results have shown it to be nearly as abundant as the Common Shrew. This is in keeping with the statement in the *Handbook of British Mammals* (1964),

which says the Pygmy Shrew is the "most widespread of all small mammals in the British Isles except the Wood Mouse".

(NS *17* 27 37 47 -- 26 36 46 56 -- 35 45 55 -- -- 54 *64*)

COMMON SHREW *Sorex araneus* Linnaeus, 1758

In the *New Statistical Account* (1845) the Common Shrew is only recorded from one parish, Paisley, which is surprising in view of its widespread distribution, and the fact that Shrews have always been well-known to countrymen. In Renfrewshire Common Shrews are extremely common and are well-nigh universally distributed; we have found them to be common even on the high moorland of the Eaglesham and Misty Law ranges.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 *65* -- 54 64)

WATER SHREW *Neomys fodiens* (Pennant, 1771)

This shrew was not recorded by Malloch and Hall (1915), but the Water Shrew had long been recognised in Renfrewshire, and there were in fact some previously published records which Malloch and Hall had overlooked. Malloch, however, did say that he had what he believed to be "incomplete skulls of the Common, Lesser, and Water Shrews, discovered amongst the castings under a nesting-place of the Barn Owl" in Renfrewshire (Malloch, 1915).

The Water Shrew was recorded in the *New Statistical Account* (1845) as "somewhat rare" in Paisley parish, and in Eaglesham parish it was said to be "very common by the banks of the reservoirs". Alston (1880) said it was widely but locally distributed throughout the mainland, and Boyd Watt (1905) said he had recent Clyde records "from every county except Argyll". In 1915 it was said that one taken at Gleniffer Braes on 17th December 1893 "used to be in Paisley Museum" (*Scot. Nat.*, 1915: 307), but we have been unable to trace this specimen.

Following the publication of Malloch and Hall's list in 1915, John Robertson (*Scot. Nat.*, 1915: 262-263) said "for some thirty-five years I have known it as an inhabitant of several of the streams in the eastern part of the shire, and it has been captured by the side of Commore Dam ..... I have seen it, in the burn in Rouken Glen for example, where the current was rapid and the bottom stony and clean. Once only have I heard it make any vocal effort. About six, possibly a family party, were running and playing together over the alga-covered, rocky bed of a small stream, which had shrunk to a mere trickle of water. All the time they were uttering subdued squeaks, feeble sounds compared with the shrill squeal of the Common Shrew".

Nowadays the Water Shrew is well known to be thinly but widely distributed throughout our county. Its usual habitat is by small fresh swiftly-moving streams, but at times it can be found far away from water. This year (1972) we found one in a wood at least 300 yards from the nearest stream. We have found it up to about 1000 feet, but not higher. Within recent years we have found specimens at Harelaw, Neilston, Lochwinnoch, Bridge of Weir, Kilbarchan, Kilmacolm, Erskine, Bishopton and Inverkip, and have had reports from elsewhere.

(NS *17* 27 37 47 -- 26 36 46 *56* -- 35 45 55 -- -- 54 --)

Order CHIROPTERA

LESSER HORSESHOE BAT *Rhinolophus hipposideros* (Bechstein, 1800)

In the *New Statistical Account* for Paisley (Volume 7, 1845) there is a substantial account of the botany and zoology of the district (pages 160-164) included on the authority of "Dr. A.R. Young, formerly of this town, but now resident at Dunoon, - an individual distinguished for his knowledge in both of these departments of natural science". In his list of the mammals to be found in the Abbey parish there is an indication of the occurrence of the Lesser Horseshoe Bat (page 162) as follows "..... and more rarely, as at Crookston Castle, *Rhinolophus Hipposideros* and *Plecotus auritus*"; no other details are given. Alston (1880) stated "all enquiries as to the fate of the specimen have been in vain, and I greatly suspect a mistake in identification". The natural history notes provided by Dr. Young certainly seem to bear some stamp of authority, but nevertheless it seems quite clear to us that this must have been an error. To the best of our knowledge there are no authentic records of nose-leaf bats from Scotland.

WHISKERED BAT *Myotis mystacinus* (Kuhl, 1819)

As many members of the Society will know, the late A.M. Stewart F.R.E.S. had a locally taken specimen of the Whiskered Bat; it was preserved in spirit and was exhibited to the Society many years ago. Unfortunately this specimen was thrown out, along with almost the whole of Stewart's collection, almost immediately after his death; the Society's Secretary at the time, Mr. John McKim, failed to save it by a matter of hours. There seems to have been no doubt about the identification, so the loss of the precise locality details is particularly vexing. It was presumed by some members to be a Renfrewshire specimen, which had been taken in the neighbourhood of Lochwinnoch, but McKim felt that it might well have been taken at Cleaves Cove near Dalry, Ayrshire, which Stewart was well known to have

frequented a great deal during the 1920s and early 1930s, so without further details it cannot be fully admitted to the Renfrewshire list. It is now most unlikely that any further information will ever turn up, but if anyone can throw any light on the matter we shall be extremely grateful.

(NS -- -- -- -- -- -- -- -- -- -- -- *35* -- -- -- -- -- --)

DAUBENTON'S BAT *Myotis daubentoni* (Kuhl, 1819)

The first record of Daubenton's Bat for the Clyde area was one taken in 1864 at Glasgow Green within a few hundred yards of the Renfrewshire boundary (Alston, 1869), and since then the history of this species within the Clyde area has been almost entirely Renfrewshire. In January 1885 A.M. Stewart and J.M.B. Taylor found considerable numbers hibernating near Craigenfeoch, and they and many other local naturalists visited this colony on many occasions until about the turn of the century, by which time it had died out, presumably owing to too much interference. Dr. Pride in his *History of the Parish of Neilston* (1910) said "found in the north of the parish, and is remarkable for the ease with which it can be tamed". It seems fairly clear to us, however, that Dr. Pride was simply quoting information communicated to him by Taylor and had no real personal knowledge.

Malloch and Hall (1915) referred to these records, and said "not unlikely that this species is more common than is generally supposed". This prophecy was rapidly shown to be correct when A.M. Stewart recorded Daubenton's Bats from several areas throughout Renfrewshire, and in 1946 Gibson exhibited to the Society two specimens of Daubenton's Bat taken at Neilston in 1933 by A.M. Stewart, who said he had "known of Daubenton's Bat in the area for sixty years". During the past twenty-five years we have personal records of Daubenton's Bats from many parts of the county, including Neilston, Loch Libo, Durrockstock, Howwood area, Lochwinnoch and Loch Thom. Although it is extremely difficult to catch specimens for identification, the 'water bats' which can be seen fairly readily by any interested observer who cares to visit suitable stretches of water throughout the county, are almost certainly Daubenton's.

Although Daubenton's Bat has long been well-known in Renfrewshire, it should be noted that recent work by local officers of the Nature Conservancy and members of the Glasgow Spelaeological Society has now shown Daubenton's Bat to be fairly widely distributed throughout several other parts of the Clyde area (W. Harvey, J. Mitchell, C. Placido, *personal communications*).

(NS -- 27 *37* -- -- -- 36 46 *56* -- 35 45 55 -- -- *54* --)

PARTI-COLOURED BAT *Vespertilio murinus* Linnaeus, 1758

Vespertilio murinus is recorded, without any English name, for the Abbey parish (Paisley) in the *New Statistical Account* of 1845 (Volume 7, page 162), but this was clearly not meant to be the Parti-coloured Bat; *Scotophilus (Vespertilo) murinus* Gray was a scientific name sometimes used at that time for the Pipistrelle (see Ellerman and Morrison-Scott, 1966). We draw attention to this, therefore, simply to dismiss it.

PIPISTRELLE *Pipistrellus pipistrellus* (Schreber, 1774)

The Pipistrelle is far and away the commonest species of bat in Renfrewshire, and is widely distributed throughout the county in some numbers. It was recorded from Paisley parish in the *New Statistical Account* (1845). During summer it can be seen on the wing virtually everywhere from the country lanes to the centres of the busiest towns, where it commonly roosts in buildings. It is less common on the moors, but we have seen bats, probably this species, nearly at the summit of Misty Law on some warm summer evenings, and have also seen specimens several hundred yards off-shore in Gourock Bay.

Bats are not infrequently reported on the wing during the winter months. These creatures have presumably been tempted out by a rise in temperature, or have been disturbed at their roosting place, and would almost certainly die. In Renfrewshire hibernation is normally from mid-October to mid-March, but the actual time may vary a little.

(NS 17 27 37 47 16 26 36 46 56 66 35 45 55 -- -- 54 *64*)

LONG-EARED BAT *Plecotus auritus* (Linnaeus, 1758)

We have a good many records of Long-eared Bats from several localities throughout Renfrewshire. These are fairly well distributed, but nowhere does the Long-eared Bat seem to be anything like so common as the Pipistrelle. There is a natural tendency, however, for all general records of 'bats' without specific identification to be classed as Pipistrelles, and nearly all the Society's accurate records of Long-eared Bats come from specimens found roosting in buildings. This usual difficulty in catching flying specimens for identification may have led to the Long-eared Bat being classed as less common than is truly the case. There are some very old records; the Long-eared Bat was recorded from Paisley parish in the *New Statistical Account* (1845) as "more rarely" found, and the Society has in its possession a photograph of a Long-eared Bat taken in Renfrewshire by the late Thomas Malloch at the end of the 19th century.

In his recent work on *The Identification of British Mammals* (second edition, 1969), Dr. G.B. Corbet of the British Museum (Natural History) says "It has recently been found that the European long-eared bats, hitherto considered to belong to a single species *Plecotus auritus* (L.), in fact comprise two overlapping species, a smaller northern one *P. auritus* (L.) and a larger southern one *P. austriacus* (Fischer). The latter is as yet only recorded from the British Isles in Dorset, Jersey and perhaps Hampshire". In the absence of any quantity of Renfrewshire material available for examination, we must assume in the meantime that all Renfrewshire Long-eared Bats are *P. auritus*.

(NS -- *27* 37 47 -- -- 36 46 *56* -- 35 45 55 -- -- -- --)

Order CARNIVORA

WOLF *Canis lupus* Linnaeus, 1758

It is well known that in ancient times the Wolf was common throughout lowland Scotland, including that part which we now call Renfrewshire (Ritchie, 1920; Harting, 1880). Ritchie several times refers to the "deliberate destruction of woods for the purpose of ridding the land of Wolves and lesser vermin; but the destruction of woodland from whatever cause must have had the like effect of decreasing their numbers and driving them to resorts further afield". In the *Old Statistical Account* (Volume five, 1793) it is said that the woods of Cathcart at one time "proved a defence" for "the wolf .....now no more to be found in this country".

Any accurate date as to when the Wolf became extinct in Renfrewshire is, of course, quite unknown, but at the time of a chase organised by James V in Ettrick Forest in 1528 it was apparently clear that "Wolves had already been extirpated from the Lowlands".

We know of no remains having been found in Renfrewshire, but many have been found in neighbouring counties, eg. at the Ardrossan shell-mound in Ayrshire (Smith, 1893). One has to be cautious here, however, for as Ritchie (1920) pointed out,"although an odd relic, such as a jaw bone I have examined from a deposit in Ayrshire, probably indicates the presence of the Wolf in the land before the arrival of man, the bones of later ages are apt to be confused with those of domesticated dogs, brought with them by the early Neolithic peoples during their northward wanderings".

FOX *Vulpes vulpes* (Linnaeus, 1758)

There is little which needs to be said about the status of

the Fox in Renfrewshire. Despite constant persecution over the years the Fox remains very common and widely distributed throughout the entire county, and has always been so. It shares with the Hare the distinction of being the Renfrewshire mammal most often mentioned in the *New Statistical Account* (1845), where it is usually noted as being a menace to farmers because of its great numbers. In the account of Inchinnan parish, written in 1836 (Vol. 7, page 117), it is said "The country people complain of the number of foxes; but it may be doubted whether they would resign the enlivening spectacle of the hunt passing through their borders, for the sake of the few barn-door fowls that the fox now and then appropriates". Here it is worth mentioning that the Lanarkshire and Renfrewshire Hunt was founded in 1771 and last year celebrated its bicentenary. For some years hunting has ceased in Lanarkshire, although a part of north Ayrshire is now included. Nowadays, in an average year, fifteen to twenty brace of Foxes are killed by the Hunt, and twenty-five brace would be regarded as a good year. For this information we are indebted to the joint masters, Mr. and Mrs. F.W. Donaldson.

The average person may not realise that Foxes are by no means confined to the wilder parts of our county; they are now commonly seen near habitation, even in the centres of our large towns, and frequently indulge in nocturnal raiding of dust-bins. This habit only seems to have become really widespread during the last twenty years, and may well have some connection with the decrease in the Rabbit as an abundant food supply since myxomatosis. Foxes are very adaptable and will live close to man if undiscovered; within recent years we have known of several occupied Fox dens within the burgh of Paisley, and at least one of these is still occupied.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 44 54 64)

PINE MARTEN *Martes martes* (Linnaeus, 1758)

Although the Pine Marten may well have occurred in Renfrewshire in ancient times, before the forests were destroyed, we consider any occurrence within recent historical times to be most unlikely. It is true that the *New Statistical Account* for Paisley parish (1845) records, on the authority of Dr. A.R. Young, that "*Martes fagorum*" had "also been killed within the parish, but must be considered as very uncommon", but this is the only reference to Martens in Renfrewshire which we have been able to trace, and we must regard it with some doubt. Certainly, none of the previous writers - Alston, Boyd Watt or Malloch and Hall - recorded Martens from Renfrewshire, and we ourselves know of no specimens or remains having been found.

The nearest authentic records to Renfrewshire seem to be the last Ayrshire specimens collected during the late 1870s,

and in this respect it is worth noting that in 1963 a Pine Marten was again recorded from south Ayrshire (*Scot. Nat.*, 1964: 99-100).

STOAT *Mustela erminea* Linneaus, 1758

As with the Fox, despite constant persecution the Stoat remains fairly common throughout Renfrewshire, although it is naturally found more readily in the wilder parts of the county. In Renfrewshire the Stoat has always been less common and less widely distributed than the Weasel, as one would expect, and, unlike the Weasel, there has been a distinct fall in our Stoat population since myxomatosis. In the *New Statistical Account* for Eaglesham parish (1840) it was said that "The *Mustela erminea*, or common ermine, often attains a great size in this parish and neighbourhood. I have seen a specimen from Balagich, where the body was upwards of twelve inches long. It had on its winter clothing, and is of a pure white, except the tip of the tail, which is black".

Family parties of Stoats, which may number up to a dozen, sometimes remain together hunting until early autumn, which occasionally leads to reports of 'packs' of Stoats; these 'packs' do not usually occur in winter. Stoats in the lowland part of the county seldom turn completely white in winter, but on the higher ground white Stoats are fairly regularly reported.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 *44* 54 64)

WEASEL *Mustela nivalis* Linnaeus, 1766

The Weasel is far and away the commonest small carnivore in Renfrewshire. It was recorded from four parishes in the *New Statistical Account* (1845), and nowadays it is still very common, and is widely distributed throughout all suitable parts of the county. The Weasel is not confined to the wilder parts of Renfrewshire, and is much more common near habitation than is the Stoat; indeed Weasels are regularly reported from gardens, often near the centre of towns.

Weasels sometimes appear to live in close association with man. They are fairly often seen in farm-yard barns, grain-stores etc, where they are obviously hunting a plentiful supply of mice, and in the early part of the last war we knew of one warehouse where several Weasels seemed to live for many years, and were highly valued for the large number of mice they killed.

Weasels are extremely useful little creatures, but even in this day and age seem to retain their false but legendary evil reputation in some minds, and in our experience are often quite senselessly persecuted by people who should know better.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 44 54 64)

AMERICAN MINK *Mustela vison* Schreber, 1777

Just after the 1939-45 war a Mink farm on a small scale was started near Langbank. This seemed to last barely a year; it was not a commercial success and apparently the few remaining Mink were set free. As far as we can ascertain, however, all were trapped or shot fairly quickly, and no feral population was established.

Since the beginning of 1963 it has been necessary to obtain a licence to keep Mink in this country, and three Mink farms have been licensed in Renfrewshire; at Inchinnan (1959), at Houston (1966), and at Lochwinnoch (1966). Mink farming ceased at Lochwinnoch in 1970, but the other two farms are still operating. Security appears to be extremely good but accidents can happen, and after the great gale of 14th January 1968 it was reported in the local press that gale damage to some cages had allowed a few Mink to escape.

Whatever their origin, it is certainly true that American Mink are now breeding in the feral state in several parts of Renfrewshire, and reports of animals being seen, shot or trapped are now turning up with increasing frequency. It is unlikely that anything can now stop Mink getting firmly established throughout the county.

(NS -- *27* 37 47 -- -- 36 46 56 -- 35 45 *55* -- -- -- --)

POLECAT *Mustela putorius* Linnaeus, 1758

In former times the Polecat was extremely common in Renfrewshire. It was recorded from several Renfrewshire parishes in the *New Statistical Account* of 1845, and nowhere is there any indication that it was in any way uncommon. In Eaglesham parish it was said to be "very destructive among poultry" and quite clearly this meant that its days were numbered. The greatly increased agricultural activity and the establishment of gamekeepers on several Renfrewshire estates around the mid-1800s meant that the Polecat was constantly persecuted. Of all the carnivores it was the one most easily trapped, and so the end came quickly.

Ten years after the time of the *New Statistical Account* the Polecat was extremely rare, and within twenty-five years it was virtually extinct, not only in Renfrewshire but apparently throughout the entire Clyde area. This time from near abundance to near extinction, less than a quarter of a century, must rank as something of a black record in the annals of animal destruction.

The early records of the Society include a Polecat taken alive at Linwood in 1858 by Morris Young, at which time it was recorded as "rather rare", and the last Renfrewshire record

known to the Society was one trapped at High Craig Rock, Craigenfeoch, in 1868. This specimen, which was also recorded by Dr. Pride (*History of the Parish of Neilston,* 1910), was mounted by Morris Young and was ultimately presented to Paisley Museum, where it was on exhibition for many years. When the Society presented this Polecat to Paisley Museum it was not, of course, known that it was the last Renfrewshire specimen, and it was only in later years that its full historical importance was realised; it is hoped, therefore, that it will always be carefully preserved. Indeed, this 1868 Renfrewshire animal may even be the last example of the native Clyde Polecat which was actually preserved, for although very occasional Polecats were recorded from a few places in Clyde until about 1890, we have been unable to trace any specimen later than 1868 still in existence.

FERRET *Mustela putorius furo* Linnaeus, 1758

For the sake of convenience we here consider the domestic Ferret separately from its wild ancestor the Polecat. Ferretting is still widely practised throughout the country districts of Renfrewshire, and albino Ferrets escape all the time; these sometimes live in the wild state for a very considerable time without necessarily establishing any feral breeding stock. Indeed, albino Ferrets almost never seem to breed in the wild.

In 1943, however, several dark variety Ferrets, of the type usually called Polecat-Ferret, which had been bred in Lochwinnoch, were deliberately set free up Calder Glen after the death of their owner. It seems that at least six were set free - two males and four females, and two of the females had recently been mated. They bred successfully and fairly quickly established a sizeable feral breeding stock; young Ferrets were seen and trapped many times during the next few years. Since Rabbits were plentiful in the area there was an abundant food supply, so altogether it was not surprising that this small colony of Polecat-Ferrets initially met with considerable success. Following the arrival of myxomatosis in the county, however, which had virtually exterminated the Rabbit population of the Calder area by early 1956, the wild Ferret population substantially declined, and of those which remained several were trapped or shot. We have neither seen nor heard of any in the area since 1962, so it appears that this localised population has now become extinct.

Local poachers sometimes import Polecat-Ferrets, which they prize highly, and some we have seen are extremely dark and virtually indistinguishable in external appearance from true Polecats. These also occasionally escape, although since they are highly prized efforts are usually made to recapture them at the

time. In any case, since females are almost exclusively used for ferretting, and these are usually unmated, any escapes are unlikely to have any wild breeding success. This is not always the case, however, and at the present moment we know of one locality in Renfrewshire where dark Polecat-Ferrets seem to have been breeding in the feral state since 1968; they appear to be little disturbed, and we hope that they continue to breed successfully. The extinction of our native Polecat left an ecological niche which looks like being filled by the many Mink which have escaped and are now breeding in the feral state. We would prefer to have our traditional Polecat back again, and hope that the present feral population will succeed where the Calder Glen population so narrowly failed. It may be that there are other areas in Renfrewshire where Polecat-Ferrets are breeding in the wild state (already we know of one other possibility), and if so we shall be extremely grateful to receive any confidential information. It is our experience that Mink and dark Ferrets are often confused by casual observers, and in view of the increasing number of Mink, all records should be treated with caution.

(NS -- 27 37 47 -- 26 36 46 56 -- 35 45 55 -- -- 54 *64*)

BADGER *Meles meles* (Linnaeus, 1758)

In the early part of the 19th century the Badger was known to be well distributed throughout Renfrewshire, but, as Hugh Boyd Watt pointed out, by the time of the *New Statistical Account* of 1845 it was clear that "the species had then become less abundant than formerly" in many parts of the West of Scotland. In the 1845 *Account* the Badger was recorded from two Renfrewshire parishes; from Paisley where it had "been killed within the parish, but must be considered as very uncommon", and at Neilston where it was said that the Badger made its appearance "but rarely". Over half a century later Dr. Pride in his *History of the Parish of Neilston* (1910), made no mention of the Badger, which is a good indication that it had certainly disappeared from the parish; indeed it appears to have well-nigh disappeared from the entire county during the second half of the 19th century, in common with other carnivores like the Wild Cat and the Polecat. This was almost certainly owing to the widespread increase of agricultural activity and the establishment of gamekeepers on many estates in Renfrewshire around the mid-1800s, which led to Badgers being foolishly persecuted as 'vermin'. Alston (1880) and Boyd Watt (1905) each recorded the Badger's disappearance from many parts of the Clyde area; it was "now so little known".

When Malloch and Hall wrote their account of Renfrewshire mammals in 1915 they were probably very nearly correct in list-

ing only some isolated occurrences, although it is interesting that one of their sites, Inverkip, ultimately became well-known as the county stronghold of the Badger for the next fifty years, an indication that Badgers had always retained a tenuous hold on the county despite the efforts of man at extermination. There is little doubt that the Badger has substantially increased in Renfrewshire, and in many other parts of the West of Scotland, during the past half-century. The lack of 'keepering during the two world wars probably helped this increase, and the spread of accurate zoological knowledge has meant that Badgers are rarely persecuted nowadays, unless by the lunatic fringe. At present fairly regularly occupied areas include Inverkip, Kilmacolm, Bishopton, Kilbarchan, Lochwinnoch, Roebank area and Eaglesham, and we often receive reports of Badgers from other parts of the county. Until quite recently one of the strongholds of the Badger within the county was still near Inverkip, where we have visited four apparently occupied sets within one day; recent population spread seems to have diminished the numbers of these Badgers, but some are certainly still present.

Badgers are often extremely local in their habitat and, being largely nocturnal, their presence in a particular area may go quite unnoticed for many years by the public at large. Indeed this may happen even with very experienced and knowledgeable countrymen. Quite recently a local gamekeeper, when gassing Foxes, was considerably distressed to discover he had gassed a Badger, and in half a lifetime in the district he had never even suspected a Badger's presence. This type of accidental discovery happens quite often, and we are quite sure that persistent field work will continue to uncover more occupied sets.

(NS *17* 27 37 47 -- 26 36 46 56 -- 35 45 55 *65* -- 54 *64*)

OTTER *Lutra lutra* (Linnaeus, 1758)

We are glad to report that Otters appear to be little persecuted nowadays, and are reasonably well distributed in small numbers throughout Renfrewshire, around most suitable streams and lochs. Otters were mentioned in two Renfrewshire parishes in the *New Statistical Account* of 1845, and there is no reason to believe that Otters have ever been anything but fairly common throughout Renfrewshire. Malloch and Hall (1915) said 'frequent' and listed several known localities.

Increasing river pollution, with the consequent diminution of fish stocks, has led to some decrease in numbers since Malloch and Hall's day, although it is interesting to note that Otters can regularly be seen beside several streams which are heavily polluted, and here they are presumably living on food other than fish. In the Clyde area as a whole Otters commonly frequent coastal areas and small off-shore islands, but this applies

little to Renfrewshire, with its heavily industrialised coastline, so that, apart from the south-west tip of the county, most Renfrewshire Otters are at inland waters, where they are seen fairly regularly by anglers, and can also be seen without too much difficulty by other interested observers. We have a few records from yachtsmen of Otters having been seen, and occasionally caught, at sea several hundred yards off-shore in Renfrewshire waters.

Otters are sometimes found far away from water, and indeed we know of several overland routes regularly used by Otters between lochs and rivers in our own and neighbouring counties. On 8th May 1944 a fully grown male Otter was caught in a trap high on the Misty Law range at over 1,000 feet.

(NS 17 27 37 47 *16* 26 36 46 *56* -- 35 45 55 -- -- 54 --)

WILD CAT *Felis silvestris* Schreber, 1777

At one time the true Wild Cat occurred fairly commonly throughout the wilder parts of Renfrewshire, and was regarded, probably correctly, as a considerable nuisance to farming interests. As with the other carnivores, however, the constant persecution which followed the greatly increased agricultural activity and the establishment of gamekeepers throughout the county in the mid-1800s led to a rapid decrease in its numbers, and by the time of the *New Statistical Account* of 1845 it was only recorded from the Abbey parish (Paisley) where it was said to have been "killed within the parish, but must be considered as very uncommon". It was steadily shot and trapped out of existence, and the last record known to the Society was a mature male killed on 26th January 1895 on Glèniffer Braes by a local gamekeeper (see Young, 1895). This specimen, which turned out to be the last known true Wild Cat of Renfrewshire, was presented to the Museum; it was mounted by Morris Young himself and is still preserved in the Museum as a historic and irreplaceable Renfrewshire specimen.

Farm and domestic cats go wild very easily, regularly breed in the feral state, and sometimes grow to a remarkable size, so that they are often reported, not surprisingly, as true Wild Cats by casual observers. No specimen we have examined, however, even of considerable size, has been a true Wild Cat, nor would we ever expect it to be.

It is worth noting that, after some years of extremely low population, the Wild Cat is again reasonably common and is steadily increasing in the wilder parts of the Clyde area north of the river (see Gibson, 1950) which, however, forms an effective barrier to the Wild Cat ever spreading back into lowland Clyde; so we never again expect to see true Wild Cats in Renfrewshire unless they are deliberately introduced.

Order PINNIPEDIA

COMMON SEAL *Phoca vitulina* Linnaeus, 1758

The Common Seal was not included in Malloch and Hall's list of 1915, but there was at least one possible earlier record; a seal shot in the Clyde "at a point some two miles above Port Glasgow" (*Field,* 11th October 1890, p. 549) might or might not have applied to Renfrewshire. This record was quoted in the *Scottish Naturalist* (1891, page 43) as an "unusual occurrence of a Seal being found in the Clyde"; presumably this was meant to refer to the actual river, but there are other contemporary references to the apparent scarcity of seals, at least in upper Clyde waters.

If these earlier reports of scarcity are correct then there has certainly been a substantial improvement in the Clyde status of the Common Seal, which is now common around all suitable shores of the Clyde at all seasons of the year; the breeding sites nearest to Renfrewshire are on the east Cowal shore between Inellan and Toward and, rather more distant, on the north Ayrshire coast just above Ardrossan.

At any rate, a few Common Seals can be seen fairly easily nowadays just off-shore in Renfrewshire waters, off Wemyss Bay and as far up as the Cloch lighthouse; some are occasionally seen in Gourock Bay. Further up the Clyde, records of seals are much rarer, presumably owing to pollution of the river, but in 1929 one was seen as far up the river as Prince's Dock, a most remarkable occurrence. We shall certainly be very glad to hear of any other records of seals in the upper reaches of the river. In 1946 we received a report of a seal at the mouth of the river Cart, but were unable to confirm this.

(NS 17 27 37 47 16 -- -- -- *56* -- -- -- -- -- -- -- -- --)

GREY SEAL *Halichoerus grypus* (Fabricus, 1791)

An adult bull Grey Seal was washed up dead at Greenock during the last week of February 1944. It was rather decomposed, but its identification was still clear when it was seen by Dr. Gibson and Mr. John McKim, at that time Secretary of our Society (Gibson, 1946). This is the only actual specimen we can trace stranded on Renfrewshire shores, but Grey Seals are now seen not infrequently in Renfrewshire waters just off Wemyss Bay point, which is not surprising in view of the large gathering of Grey Seals on the east Cowal shore between Inellan and Toward.

(NS 17 *27* -- -- 16 -- -- -- -- -- -- -- -- -- -- -- --)

Order PERISSODACTYLA

WILD HORSE *Equus caballus* Linnaeus, 1758

Fossil bones of the Horse have been found at several places throughout the Clyde area, including Paisley (Blair 1891; Watt, 1905) and in Cowden Glen at Crofthead, Neilston (Craig, 1871; Young, 1871; Bennie, 1891).

When the railway cutting was being constructed through Cowden Glen in 1869 about ten bones of the Horse were found (Craig, 1871). Young (1871) said that the bones "belonged to a horse, about one-third smaller than the average size, but probably of the common species", and later added "this seems to be the first recorded instance in which the remains of the horse have been found associated with the large extinct mammals that roamed in the valleys of Scotland in post-pliocene times ..... There can be little doubt.....that the bones of the horse found in the Crofthead deposit are of equal antiquity with the now extinct *Bos* and *Megaceros*". These bones are still preserved in the Hunterian Museum at Glasgow University. In July 1870 Bennie found another bone, later said to be "the third left side rib of a horse not larger than a pony" (Bennie, 1891). This bone was presented to the Anatomical Museum of the University of Edinburgh (and was eventually transferred to the Royal Scottish Museum).

Alston (1880) considered that there was "no reason to believe that the Horse survived in Scotland in a really wild state in historical times". With this Ritchie (1920) agreed.

Order ARTIODACTYLA

WILD BOAR *Sus scrofa* Linnaeus, 1758

The Wild Boar certainly occurred in lowland Scotland, including Renfrewshire, in ancient times when most of Scotland was thickly wooded. In the *Old Statistical Account* (Volume five, 1793) it is said that the woods of Cathcart "proved a defence" for "the boar ..... now no more to be found in this country". The date of its extinction is obscure, but it is unlikely to have existed in Scotland beyond the early years of the seventeenth century (Ritchie, 1920), and it had clearly gone from Renfrewshire long before this.

To the best of our knowledge no remains of the Wild Boar have been discovered in Renfrewshire although remains have been found in neighbouring counties; the nearest site appears to be the excavations at the Ardrossan shell-mound (Smith, 1893).

GIANT DEER *Megaceros giganteus* (Blumenbach, 1803)

The Giant Deer - "variously called giant fallow deer and, quite erroneously, the Irish elk - was undoubtedly the finest deer that has ever inhabited Great Britain"; it stood over six feet high at the shoulder, and a fully matured stag probably weighed between 800 lbs and 1000 lbs (Whitehead, 1964). When it died out in Scotland is uncertain but Professor Ritchie (1920) suggested that it was extinct by the time Neolithic man came to Scotland "some 7,000 years before the opening of the Christian era". Two Renfrewshire sites are known:

Remains of the Giant Deer ("two portions of the horns") were found in 1869 when the railway cutting was being constructed through Cowden Glen, near Crofthead, Neilston (Craig, 1871; Young, 1871). These remains are still preserved in the Hunterian Museum at Glasgow University; for a detailed description see Smith (1873).

Blair (1891) wrote "At the excavations of the new harbour on the Cart the horns of *Bos primigenius* were found at a depth of 14 feet from the surface; and a few years ago the scapular bone of the Irish Elk, *Megaceros Hibernicus*, was found at about the same depth in a clay-field on the west side of the river; and one of the horns of this animal was found at the excavations for the last gasometer which was erected at the Paisley Gasworks. The last two specimens are in the public museum".

It is also worth noting that the first, and undoubtedly the best, specimen of the Giant Deer found in Scotland comes from our neighbouring county of Ayrshire, where a complete head with a spread of ten feet four inches was found at Maybole (*New Statistical Account*, Volume five, page 353, dated 1837).

FALLOW DEER *Dama dama* (Linnaeus, 1758)

We have no record of wild Fallow Deer in Renfrewshire, but tame herds were kept in at least two parks. At Castle Semple, Lochwinnoch, there used to be a small herd of Fallow Deer in the deer park there, but this herd seems to have died out by the late 1880s. Certainly, when Paterson wrote of the Castle Semple deer park in 1893 he made no mention of Fallow Deer; he was a very thorough recorder, and it is unlikely that he would have omitted any reference to them if they had still been present. Hugh Boyd Watt (1905) mentions a herd at Pollok House, although as with other herds "difficulties are experienced in maintaining the stock". The Pollok herd appears to have died out shortly after this date.

RED DEER *Cervus elaphus* Linnaeus, 1758

It is clear that Red Deer occurred in Renfrewshire in ancient times. Professor Ritchie in his *Animal Life in Scotland* (1920), gives a distribution map of Red Deer which shows them to be present in Renfrewshire from prehistoric times up till the middle ages. We know of no actual remains having been found in our county, although some have been found in excavations close to the Renfrewshire boundary. Bones of the Red Deer were found in the Ardrossan shell-mound (Smith, 1893), and antlers with about twenty points from a moss at West Kilbride are in the Hunterian Museum at Glasgow University.

Walter the Stewart, in founding the Abbey of Paisley in 1160, "granted the monks a tithe of his hunting, with the skins of the deer slain in his forest of Ferenze in Renfrewshire". In the *Old Statistical Account* (Volume five, 1793) the woods of Cathcart are stated to have "proved a defence" for "the boar, the wolf, and even the deer ..... now no more to be found".

Ritchie (1920) said "By the middle of the sixteenth century the disappearance of woodland, for use as timber and to make way for the pasturing of great flocks of sheep for which the Lowlands were already famous, led to the reduction of the Deer and to the narrowing of the bounds wherein they were wont to roam. Even the Statute of 1682 prohibiting the traffic in venison for seven years could not avert the evil day, and before the close of the seventeenth century Red Deer and shortly afterwards Roes were all but banished from the Lowlands of Scotland". The date of extinction is not known, but is likely to have been complete by 1700.

ROE DEER *Capreolus capreolus* (Linnaeus, 1758)

In historical times it seems likely that Roe Deer were extremely common in Renfrewshire, but as Ritchie (1920) said "By the middle of the sixteenth century the disappearance of woodland, for use as timber and to make way for the pasturing of great flocks of sheep for which the Lowlands were already famous, led to the reduction of the Deer and to the narrowing of the bounds wherein they were wont to roam. Even the Statute of 1682 prohibiting the traffic in venison for seven years could not avert the evil day, and before the close of the seventeenth century Red Deer and shortly afterwards Roes were all but banished from the Lowlands of Scotland".

A few pairs seem to have remained in Lanarkshire, however, and around 1800 the Marquis of Ailsa introduced Roe Deer to his estate at Culzean Castle, where they increased at such an alarming rate that within fifty years of their introduction they had become such a menace to the young plantations that orders were

given for their complete extermination (Whitehead, 1964). From these areas they spread locally to neighbouring counties, and it is interesting that at least one Renfrewshire parish (Erskine) mentioned Roe Deer by the time of the *New Statistical Account* of 1845. The increase of tree planting in Renfrewshire around the middle of the 19th century gave Roe suitable habitat once more, and from then on they steadily increased in numbers. Malloch and Hall (1915) said "stray specimens have been seen and shot", but we feel this was a considerable understatement, even at that time. Certainly nowadays the Roe is thinly distributed in all suitable territory right throughout the county. Nearly every suitable stretch of woodland has some Roe, although they are shy and retiring and are not always seen by the casual observer. Despite urban growth they do not seem to be decreasing, and in some areas are regularly visiting gardens on the outskirts of towns, where some individuals occasionally become remarkably tame.

(NS 17 27 37 47 -- 26 36 46 56 -- 35 45 55 *65* -- 54 64)

URUS *Bos primigenius* Bojanus, 1827

Remains of the mighty Urus (Gigantic Fossil Ox, or Aurochs), the gigantic wild ox which once roamed widely throughout Britain but had probably become extinct in our country by the time of the Roman occupation, have been found at several sites within the Clyde faunal area, including Renfrewshire.

The best Renfrewshire specimens, and apparently the earliest Scottish remains (Ritchie, 1920), were found in July 1868 during the construction of the railway cutting in Cowden Glen, Neilston. Here, in inter-glacial deposits, the skull and horn core of a Urus were discovered, and later some remains of the Giant Deer (extinct Irish Elk) and primitive Horse were also found nearby. Bennie (1891) wrote as follows: "Hearing that the 'forehead of an old cow' had been got in it 25 feet below the surface a few days previously, I called on Mr. Orchur, the overseer, who showed me what was really a skull of *Bos primigenius*. I took the following measurements:- across forehead, 11 inches; round base of horn, 13 inches; length of perfect horn, 30 inches; length of broken horn, 6 inches". Dr. Pride figured a photograph of a horn and upper part of the skull of this specimen in his *History of the Parish of Neilston* (1910), where he said the specimen had "now found a home in Caldwell House", but where it is now we do not know.

Other specimens have been found near Paisley. Blair (1891) said "At the excavations of the new harbour on the Cart the horns of *Bos primigenius* were found at a depth of 14 feet from the surface;" and at a meeting of the geological Society of

Glasgow on 13th January 1898 "Mr. Joseph Sommerville exhibited, on behalf of Mr. James Wilson, the right half of the Lower Jaw of *Bos primigenius*, an extinct British ox, from the Paisley clay-beds, also a Rib-bone, probably of the same species" (*Trans. Geolog. Soc. Glasgow*, 11: 296-297). These Paisley specimens are preserved in the Hunterian Museum at Glasgow University.

CELTIC SHORTHORN *Bos longifrons* Owen, 1848

According to various authorities the Celtic Shorthorn (or smaller Fossil Ox), the probable ancestor of some of our modern breeds of domestic cattle, was introduced into Britain from the Continent by Neolithic man, and was believed to be the only kind of domesticated ox in the country until the Romans invaded Britain (Whitehead, 1953). Remains of this species have been found at many places throughout the Clyde faunal area; Renfrewshire sites include Pollokshaws (Watt, 1905; Malloch and Hall, 1915).

WHITE CATTLE *Bos taurus* (Linnaeus, 1758)

During the latter part of the 18th century some polled White Cattle were kept in Ardrossan Castle park by the tenth Earl of Eglinton. By 1820, however, only two cows and a bull remained in the park and these were sent to Duchal, at Kilmacolm, in Renfrewshire as a present from the then Earl of Eglinton to Mr. Porterfield of Porterfield and Duchal. Apparently the cattle were driven along the road from Ardrossan to Duchal, a distance of about twenty-five to thirty miles, and the removal was only accomplished after much difficulty (Whitehead, 1953). Storer (1877) says "A number of people had to be employed and old Mr. Bartlemore was nearly unhorsed and sent into a hedge". On another occasion, on leaving the main road, "the bull turned on the party, and attacked them with considerable fury". Storer suggests that the White Cattle did not remain long at Duchal "for the bull, soon after arrival, was killed, probably on account of his savageness"; although another authority, a Mr. W. Dickinson, says that "the bull and one of the cows died from the effect of removal" (Whitehead, 1953).

Some cattle, however, were apparently still present at Duchal in 1836, for the *New Statistical Account* (1845) gives the following description of them: "A few years ago, a bull and two cows of the aboriginal breed of the country were brought into the parish from Eglinton Castle. They are entirely white, and continue so shy that they will allow no one to approach them. The flesh of these animals, it is believed, has neither the richness nor the flavour of the Highland breed of cattle" (Volume seven, page 57).

In their 1915 list Malloch and Hall made no mention of White Cattle, and the omission was probably deliberate.

WILD GOAT *Capra hircus* Linnaeus, 1758

During the late 1930s some domestic Goats escaped and bred in the feral state in north Ayrshire, on the hills near Roebank close to the Renfrewshire border. They wandered fairly widely and occasionally strayed into Renfrewshire. Ultimately there seem to have been eight or nine animals in this small herd, but they had disappeared by 1945. Presumably they died out, or were more probably shot during the war when they might have been regarded as competing for grazing.

(NS -- -- -- -- -- -- -- -- -- -- -- *35 45* -- -- -- -- --)

Order LAGOMORPHA

BROWN HARE *Lepus europaeus* Pallas, 1778

The Hare shares with the Fox the distinction of being the Renfrewshire mammal most commonly mentioned in the *New Statistical Account* of 1845. It was recorded from five parishes, and it is clear that its abundance in some parishes was regarded as a menace to agriculture. In some areas the Hare was highly regarded for sport and the account of Eaglesham parish records the following interesting passage: "The common hare (*Lepus timidus*) is in this district a remarkably swift powerful animal, and often puts the best bone and muscle of the Clydesdale Coursing-Club to the full stretch. The parish of Eaglesham is a favourite coursing ground to the Earl of Eglinton, Lord of the Manor, the Marquis of Douglas, and the other spirited and enterprising members of that far-famed club. To those who take delight in these sports, the Eaglesham hare is an object worthy of pursuit, in comparison of the more luxuriant and less powerful animals on the lower grounds, which are generally overtaken by the unerring flight of their too savage pursuers before they have measured half the distance". After the increase in the Rabbit population, which took place around the middle of the 19th century along with the greatly increased agricultural activity, the numbers of Hares considerably decreased, but they still remained common and widely distributed throughout Renfrewshire.

After the arrival of myxomatosis and the destruction of a large part of the Rabbit population in 1954, the Hare underwent the usual increase in numbers, and at times twenty to thirty could be seen in an average-size field. The population soon became stabilized, however, and at present the numbers are more or less back to normal. Although there is now no organised Hare coursing in the county, Brown Hares are widely pursued and caught by poachers with dogs.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 44 54 --)

MOUNTAIN HARE *Lepus timidus* Linnaeus, 1758

In prehistoric times the Mountain or Blue Hare was common throughout the lowlands of Scotland, including Renfrewshire, but after the disappearance of the last traces of the Ice Age its natural range became limited to the Highlands, and it was unknown south of the Forth-Clyde line until the 1830s, when some introductions took place (see Ritchie, 1920). It was certainly not recorded from any Renfrewshire parish in the *New Statistical Account* of 1845.

In 1861, however, some were released at Glenbuck, Lanarkshire (*Proc. Nat. Hist. Soc. Glasgow*, 5: 73), where they increased very rapidly and by 1866 were "abundant" on the neighbouring mountain of Cairn Table on the Lanarkshire-Ayrshire border "and already formed a stable food supply of the shepherds of the locality" (Ritchie, 1920). From here they spread rapidly and had already reached the Renfrewshire hills near Eaglesham by the mid-1870s. After this they quickly spread to all other suitable parts of the county, and by 1901 Hugh Boyd Watt was able to record that 300 had been killed on the Misty Law hills in one season. This was remarkable and was not equalled by neighbouring shoots in Ayrshire. Since then the Mountain Hare has always been well-known in our county.

As one would expect, the Mountain Hare is local in Renfrewshire and is largely confined to the higher hills along the Misty Law range, the Eaglesham moors, and to a lesser extent the Roebank area, although stragglers do occur occasionally in other parts of the county. During the past twenty-five years, however, it has considerably decreased in Renfrewshire, in common with many other parts of the West of Scotland, and nowadays Mountain Hares are nowhere anything like so common as they used to be. Some are still shot from time to time, but organised shoots for Mountain Hares are now a thing of the past in Renfrewshire; they may increase again.

Renfrewshire Mountain Hares assume their winter coat usually between November and March, although the dates can vary a lot from year to year. Those seen near the tops of the hills usually undergo a complete change to white, but in Renfrewshire it is commoner to see Mountain Hares in partial change. In some years Mountain Hares have been seen as late as the end of May still retaining part of their winter dress.

(NS -- 27 *37* -- -- 26 36 -- -- -- 35 45 55 -- *44* 54 64)

RABBIT *Oryctolagus cuniculus* (Linnaeus, 1758)

It seems that the Rabbit arrived in Renfrewshire in the early part of the 19th century. It was recorded in the *New Sta-*

tistical Account (1845) for the parishes of Kilbarchan, Cathcart, and Erskine. In some parts it had only recently arrived, but in others was already regarded as a menace to the farmer. This patchy distribution was in keeping with the uneven agricultural development throughout the county at that time, for, as Ritchie (1920) pointed out, it was the great increase in agricultural activity in the middle of the 19th century which gave the great impetus to the increase in the populations of Rabbits and the vegetarian rodents.

As with other parts of the country, the Rabbit rapidly increased and had become a severe agricultural pest throughout Renfrewshire by the late 1870s. This remained the position until the arrival of myxomatosis, which reached Renfrewshire in 1953 and was widespread by early 1954. Following this the Rabbit disappeared from large parts of the county, but since then has staged some sort of recovery and there are now many local population groups, although none of these appears to be very large. Recurring isolated outbreaks of myxomatosis appear to keep the population in some check.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 44 54 64)

Order RODENTIA

RED SQUIRREL *Sciurus vulgaris* Linnaeus, 1758

There is no doubt that the Red Squirrel was common throughout lowland Scotland, including Renfrewshire, in ancient times when the country was thickly wooded; there are occasional references in old documents. When the Squirrel actually disappeared from lowland Scotland is not recorded; the destruction of the forests was apparently the main cause of its extermination, and as Professor Ritchie (1920) said "It had certainly gone long before it was mentioned as extinct". In Renfrewshire it was certainly extinct by the end of the 18th century.

In the early 1800s, however, some Red Squirrels from England and Scandinavia were introduced to several places in Scotland by private landowners. Writing in the *New Statistical Account* the minister of Eaglesham parish said (1840) "The Squirrel, common enough in the neighbourhood, has not yet reached this locality". This 'neighbourhood' must presumably have been a reference not to Renfrewshire but to the adjacent counties of Lanarkshire and Dunbartonshire, which had been colonised by spread from an introduction of Squirrels at Dalkeith in 1772 (Harvie-Brown, 1881). These eventually spread to Renfrewshire, which may also have received some stock at a later date by spread from the mid-Ayrshire introductions around 1870 (Harvie-

Brown, 1881; Ritchie, 1920). At any rate, by about 1890 the Squirrel was fairly widespread and well established in Renfrewshire, and it remained reasonably common for the next half-century, although some fluctuations in population did occur, usually following severe winters. The total population was never very large, however, since coniferous pine woods, the natural habitat of the Red Squirrel, were not dense in Renfrewshire.

By the late 1940s, following two extremely severe winters, the Squirrel had again become virtually extinct in Renfrewshire; in fact at that time the only areas known to the Society to have Squirrels were Inverkip, where there were still a few, and Rouken Glen park, where some Red Squirrels lived in the semi-tame state. Since then the population has slowly increased once again, possibly aided by some localised, but unrecorded, introductions, and at present the Red Squirrel is thinly distributed throughout our county, with discrete populations in suitable areas. Nowhere, however, is it really common, because of the type of woodland. In our opinion the Red Squirrel will always be at risk in Renfrewshire during severe winters, and liable to undergo sudden and drastic reduction in its population.

(NS 17 27 *37* 47 16 26 36 46 56 -- *35 45* 55 -- -- *54* --)

GREY SQUIRREL *Sciurus carolinensis* Gmelin, 1788

From time to time there have been a few semi-tame Grey Squirrels in some south Glasgow parks, which technically lie within the old Renfrewshire boundary. They never seem to have bred, which is probably all to the good, if a little surprising. Apart from this we have no records of Grey Squirrels within our county.

(NS -- -- -- -- -- -- -- -- 56 -- -- -- 55 -- -- -- --)

DORMOUSE *Muscardinus avellanarius* (Linnaeus, 1758)

During the last war, while Dr. Gibson was looking after the Natural History Department at Paisley Museum, two Dormice were brought alive to the Museum. It was known, however, that several were being kept locally as pets, and these two were obviously escapes. Recently the Dormouse seems to have fallen out of popularity as a pet, and to the best of our knowledge no further specimens have turned up. The Dormouse breeds in the south of England, so it is not impossible that escaped specimens might have had some feral breeding success in Renfrewshire, but we would regard this as extremely unlikely.

(NS -- -- -- -- -- -- -- *46 56* -- -- -- -- -- -- -- --)

HARVEST MOUSE *Micromys minutus* (Pallas, 1771)

"There is preserved in the Free Museum, Paisley, the nest of a Harvest Mouse (*Mus minutus*, Pallas). This nest was found by me in the parish of Kilbarchan in the beginning of the winter of 1895" (*Ann. Scot. Nat. Hist.*, 1898: 112). Thus wrote the late J.M.B. Taylor, formerly Vice-President of our Society, Morris Young's one-time assistant, and ultimately his successor as Curator of Paisley Museum. He gives a very detailed description of this nest, and then goes on to say "I have also seen the nest of the Harvest Mouse in Abbey Parish, Renfrewshire, built in the same manner as the above described, but finer in appearance from finer blades of grass having been used. I have seen as many as three of them within a few feet of each other, but in these cases only raised from 5 to 8 inches above the ground. They were also at the root of a hawthorn hedge by the side of a cornfield, and were observed in the winter months when the hedges were leafless". The nest from Kilbarchan parish is still preserved in Paisley Museum, and has been exhibited to the Society in the past; it certainly appears to be a perfect example.

J.M.B. Taylor was an extremely sound zoologist, but in none of the cases referred to above was an animal seen, so the evidence must always be rather unsatisfactory. Dr. D. Pride in his *History of the Parish of Neilston* (1910) says "Observed among the stooks in harvest in the meadows of Caldwell, after they had been sown with corn", a statement which we quite frankly totally disbelieve. Dr. Pride was a most admirable local historian, but he was no naturalist, and a glance at the natural history section in his book shows several glaring errors. He was, however, very friendly with J.M.B. Taylor, from whom he obviously obtained much natural history information at second hand. At times this quite clearly led him to make some assumptions which were quite unjustified, and we suspect his statement on the Harvest Mouse comes into this category.

Nevertheless, the whole thing is a considerable puzzle, and it may be that in former times we did have a local Harvest Mouse population which is now extinct. In this respect it is worth noting that there are certainly some authentic records of Harvest Mice from the east of Scotland.

WOOD MOUSE *Apodemus sylvaticus* (Linnaeus, 1758)

The Field Mouse or Wood Mouse is very common and widely distributed in all suitable localities throughout our county, although it appears to be relatively absent from the higher hills. It regularly invades houses, particularly in the country

districts, so it should not be assumed that mice found in dwelling-houses are always House Mice.

(NS 17 27 37 47 16 26 36 46 56 -- 35 45 55 65 -- 54 *64*)

BLACK RAT *Rattus rattus* (Linnaeus, 1758)

There is no mention of the Black Rat for Renfrewshire in the *New Statistical Account* of 1845. Alston (1880) wrote "appears to be almost extinct as a native species, although examples sometimes occur near sea-ports; thus Mr. J.M. Campbell lately showed me a fine specimen which was killed on a wharf at Glasgow in 1874"; Boyd Watt (1905) said "There is no evidence that this species was ever common. Recent records from Glasgow, Greenock and Paisley are almost certainly due to introductions. Between March and December, 1887, Mr. W. Hannan Watson received eighteen specimens from a rat-catcher, all taken in the neighbourhood of Glasgow Harbour" - the implication clearly being that this was an occurrence sufficiently unusual to be worth recording. Malloch and Hall (1915) said "Probably extinct. Not indigenous. Two captured in Paisley in 1885".

For once we take leave to disagree with all these previous writers, for we are quite certain that this assessment of the status of the Black Rat was entirely wrong, and that it has always been reasonably common around the harbours of Glasgow. Before the turn of the century it may well have been that no accurate figures for Black Rat destruction were kept, or, if they were kept, were unavailable to naturalists at that time, but this is not the case nowadays. Matheson (1939), in an extensive survey of the status of the Black Rat in the sea ports of Great Britain and Ireland, said that whether the Black Rat "ever became quite so scarce at these ports as is often stated, may be doubted". He gave figures for Black Rat destruction at many ports over several years, but unfortunately there is a discrepancy in the figures he quoted for Glasgow (see *J. Anim. Ecol.*, Vol. 8, pages 90 and 92). Subsequent enquiry has shown that this discrepancy resulted from a misunderstanding between Matheson and the Glasgow Public Health Department as to what information was actually required, and we are extremely grateful to officials of the Glasgow Public Health Department for taking the very considerable trouble to look out these old details for us. The correct figures for Black Rat destruction from ships and docks in Glasgow for the period quoted by Matheson (the nine years from 1929 to 1937) are 48,556; of these 32,806 were found on ships after fumigation, but this still leaves 15,750 from the dock/warehouse area.

This is a clear indication of an active and thriving population, albeit one being supplemented fairly regularly by es-

capes from ships. Within recent years rat control on ships has been considerably intensified and we are extremely grateful to Dr. T. Scott Wilson, Medical Officer of Health for the City of Glasgow, and Mr. J.H. Smyth, Senior Port Health Inspector, for the following recent details of Black Rat destruction in the Glasgow area:

	Ships		Docks	
	Males	Females	Males	Females
1950	1389	797	249	175
1951	841	468	382	201
1952	810	517	435	303
1953	674	404	348	234
1954	441	283	231	133
1955	322	215	141	103
1956	293	179	104	62
1957	177	114	40	41
1958	113	80	21	24
1959	304	266	36	32
1960	161	98	35	29
Totals:	4136	2624	1773	1162
1961	181	118	25	24
1962	124	74	27	23
1963	92	59	42	40
1964	176	114	23	21
1965	108	73	11	11
1966	138	87	24	16
1967	32	21	35	23
1968	42	28	29	7
1969	30	17	21	17
1970	46	29	28	23
Totals:	969	620	265	205

These figures give a very clear indication of the effectiveness of the rat control being practised. Well over 50,000 Black Rats from ships and docks were destroyed in the decade up to 1930, nearly 10,000 in the decade up to 1960, and just over 2,000 in the decade up to 1970. Indeed, as can be seen, more Black Rats were destroyed during the year 1950 than in the ten-year period 1961-70. The land areas covered by all these figures are the docks and warehouses south of the river from Bridge Wharf to King George V Dock, and north of the river from Custom House Quay to Rothesay Dock at Clydebank; a glance at an old map will show that part of this comes within the Renfrewshire boundary. No separate figures are kept, but from information

received it is perfectly clear that a good many of these Black Rats were destroyed within Renfrewshire.

Further down the river, in the main part of Renfrewshire, for up-to-date information we are grateful to the various sanitary inspectors, Mr. Archibald Dale of Renfrew County, Mr. A.M. M. Connell of Greenock and Mr. I.B. Anderson of Port Glasgow. There appears to be no evidence at all of regular kills of Black Rats on the western seaboard of our county compared to the Glasgow dock area, although an occasional Black Rat does turn up from time to time, and is assumed, probably correctly, to be a ship escape. If a pregnant female Rat were to escape, however, there is always the possibility of a small local population getting established, and there is on record at least one local infestation of Black Rats in a Port Glasgow works some years ago, but this was very quickly brought under control and all the Black Rats were apparently killed. It is likely that occasional specimens will always turn up from time to time over the years. Two Black Rats from Greenock were exhibited to the Society in 1950 (McKim, 1950) and others have been reported from time to time.

From all this evidence it seems reasonable to assume that Black Rats in the main part of Renfrewshire are now occasional and irregular importations, but that a small breeding population still exists in the Glasgow dock/warehouse area; this breeding population is unlikely to maintain itself in the absence of escapes from ships.

(NS -- 27 37 47 -- -- -- 46 56 -- -- -- -- -- -- -- -- --)

BROWN RAT *Rattus norvegicus* (Berkenhout, 1769)

E.R. Alston (1880) said that the Brown Rat "invaded the south of Scotland from England about the middle of the last century, first appearing in Selkirkshire between 1770 and 1777". Hugh Boyd Watt (1905) considered that it reached the Clyde area during the early 1800s, and an examination of contemporary evidence appears to support this view.

There is apparently no accurate information as to when the Brown Rat first arrived in Renfrewshire. In the account of the Abbey parish (Paisley), written by Dr. A.R. Young in 1837, the Brown Rat was said to be "very abundant", but we can trace no other Renfrewshire reference to the Brown Rat in the whole of the *New Statistical Account*. It is unlikely that the arrival of a new, and very destructive, animal in the area would have gone without comment, so it is not unreasonable to assume that the Brown Rat was absent from many parts of Renfrewshire at the time of the *New Statistical Account*. This patchy and uneven type of distribution is, of course, not unusual in the years

following the arrival of a new species in an area. Paisley was the biggest centre of population, where the Rat would get the greatest chance to increase. The subsequent increase in human population and the spread of agricultural activity throughout the county around the mid-1800s undoubtedly gave the Rat excellent opportunities, and from then on it quickly spread throughout the entire county, becoming a severe pest and probably our commonest mammal by the 1860s.

Nowadays, despite continuous attempts at extermination, the Brown Rat remains extremely common and is widely distributed throughout the entire county. Although most common near habitation, as one would expect, it is also found very widely away from man. Brown Rats are commonly found along the banks of most of our rivers, where they are often mistaken for Water Voles, and many seem to lead a permanent existence far out on our moors; specimens have been shot near the summit of Misty Law. They are regularly seen around the shores of lochs and, being good swimmers, sometimes cross to islands. We have seen Brown Rats on the main islands of several Renfrewshire lochs, including Loch Thom and Roebank.

Once at Roebank we heard a commotion suddenly break out on the small islet where the Black-headed Gulls nest. Through binoculars we could see a Rat being given a severe buffeting by some gulls, and since the commotion had started suddenly it seemed fairly clear that the Rat had just arrived. We rowed across and dislodged it from beneath some stones where it had taken refuge; it immediately took to the water and swam strongly for the shore, about one hundred yards away, which it reached safely, although it rested on the bank for nearly fifteen minutes.

(NS 17 27 37 47 16 26 36 46 56 66 35 45 55 65 44 54 64)

HOUSE MOUSE *Mus musculus* Linnaeus, 1758

Very common and widely distributed in all suitable territory throughout the entire county. Particularly common near habitation, as one would expect, but also quite frequently found away from man; in our experience the mouse of the farm fields and stooks is very often the House Mouse.

(NS 17 27 37 47 16 *26* 36 46 56 66 35 45 55 65 44 *54 64*)

BANK VOLE *Clethrionomys glareolus* (Schreber, 1780)

The Bank Vole is common and widely distributed in all suitable areas throughout Renfrewshire, and presumably was always so, although Boyd Watt (1905) said it was "little known" and could only give three records for the whole Clyde area, one of these being from Paisley in 1891. He correctly surmised that

its apparent scarcity was probably "due to its being overlooked by observers or to a want of specific determination". Dr. Pride (*History of the Parish of Neilston*, 1910) said "Is rare, but has been found in the vicinity of Killoch Glen, where also a white variety was caught some years ago".

Credit for the discovery of its correct status in Renfrewshire goes to the Rev. Charles A. Hall, a former President of our Society, who wrote in 1914 that the Bank Vole "has always been regarded as rare in Renfrewshire. Not being satisfied on this point, I recently caused my son to set traps in suitable places near Paisley, with the result that specimens have been repeatedly caught. The species is evidently fairly common in this district, and is probably so elsewhere in the west" (*Scot. Nat.*, 1914: 19). Malloch and Hall (1915) said "common".

Our own trapping results have shown the Bank Vole to be widely distributed and as common as the Short-tailed Vole in most areas.

(NS -- 27 37 47 -- 26 36 46 56 -- 35 45 55 *65* -- -- --)

WATER VOLE *Arvicola terrestris* (Linnaeus, 1758)

This large dark vole is fairly common beside all suitable waters throughout the county. Although most commonly found near sluggish rivers and streams, it is fairly often seen far away from water, and in our experience its territory regularly extends well over a hundred yards from the banks of its native stream. Oddly enough, it is the only species of vole mentioned in the *New Statistical Account* (1845); it was said to be "very abundant" in Abbey parish, Paisley, and in Eaglesham parish it was "very common by the banks of the reservoirs".

The black variety of the Water Vole is also more common than is generally realised, and some of these melanistic specimens have on several occasions been exhibited to the Society.

(NS *17* 27 37 47 16 26 36 46 56 -- 35 45 55 -- -- 54 64)

FIELD VOLE *Microtus agrestis* (Linnaeus, 1761)

The Field Vole or Short-tailed Vole is extremely common and widely distributed throughout Renfrewshire, and certainly forms the staple diet of many of our predatory birds and animals. As most people know, voles regularly occur in 'plague' form, but history shows that Renfrewshire, and indeed the entire Clyde area, has been much less affected by vole plagues than neighbouring parts of the country, e.g. Solway and the Borders.

(NS *17* 27 37 47 -- 26 36 46 56 -- 35 45 55 65 44 54 64)

MUSK RAT *Ondatra zibethicus* (Linnaeus, 1766)

In the late 1920s and early 1930s Musk Rats were introduced and kept at various places throughout the country for fur farming. They frequently escaped, bred rapidly in the feral state, and ultimately became a severe and widespread pest in several areas. There was a Musk Rat farm at Neilston, Renfrewshire, but here the animals were all destroyed before the general embargo on keeping Musk Rats came into force on 1st April 1933 (see *J. Anim. Ecol.*, 1934: 250-267). In 1934 a pet shop in Paisley exhibited two Musk Rats "said to have been obtained locally"; we have no further information about this, and whether they had any connection with the Neilston fur farm is conjectural. We have no evidence that Musk Rats ever bred in the feral state in Renfrewshire.

(NS -- -- -- -- -- -- -- *46* *56* -- -- *45* -- -- -- -- --)

COYPU *Myocastor coypus* (Molina, 1782)

This has a very tenuous place in our list. Several Coypus escaped from private captivity in the south side of Glasgow about September 1948, and received some considerable local publicity, around the Pollokshaws area, as "giant rats escape". All were ultimately killed or captured, however, and there was no question of them getting established in the wild.

(NS -- -- -- -- -- -- -- -- *56* -- -- -- *55* -- -- -- --)

Order CETACEA

LESSER RORQUAL *Balaenoptera acutorostrata* (Lacepede, 1804)

"On 7th August, 1897, the small steam whaler 'Thrasher', when on her trial trip, had the unusual experience, in such circumstances, of putting her whaling gear into actual use" (Watt, 1902). She sighted a whale off Wemyss Bay, and finally harpooned and killed it near Largs. She towed this whale, which was said to be thirty feet long, to Messrs Caird & Co.'s shipbuilding yard at Greenock, where the carcase was sold for £5. The lips found their way to Paisley Museum, and Hugh Boyd Watt sent a photograph of them to Mr. Oldfield Thomas of the British Museum who identified them as the lips of a Lesser Rorqual (Watt, 1899). It is worth recording this in a Renfrewshire list, but the record must to a large extent be regarded as one of 'assisted passage'! The specimen was in Paisley Museum for many years, and has been exhibited to the Society in the past, but is now nowhere to be found.

BLUE WHALE *Balaenoptera musculus* (Linnaeus, 1758)

In the *New Statistical Account* for Renfrewshire (Volume 7, pages 548-549, 1845) "Balaenoptera musculus" is included in a "list of the principal whales and fishes found in the Clyde, and its frith or estuary". We feel we should draw attention to this statement since it is included in the Renfrewshire volume of the *New Statistical Account,* but it is extremely unlikely that it was meant to refer in any way to Renfrewshire.

SPERM WHALE *Physeter catodon* Linnaeus, 1758

In the *New Statistical Account* for Renfrewshire (Volume 7, pages 548-549, 1845) "Physeter microps" is included in a "list of the principal whales and fishes found in the Clyde, and its frith or estuary". We feel we should draw attention to this statement since it is included in the Renfrewshire volume of the *New Statistical Account,* but it is extremely unlikely that it was meant to refer in any way to Renfrewshire.

BOTTLE-NOSED WHALE *Hyperoodon ampullatus* (Forster, 1770)

The Bottle-nosed Whale has been known to find its way to the upper reaches of the Clyde for nearly two hundred years (see *Old Statistical Account,* Volume 4, page 406, 1792). It is certainly the commonest large cetacean in Clyde waters, and even nowadays can regularly be seen far up the firth. Bottle-nosed Whales are often seen from steamers and ferries plying between Gourock and Dunoon, and we also have several records of these whales seen from the Renfrewshire shores, usually near Wemyss Bay point.

Several Renfrewshire strandings have been reported, as follows: A young male was stranded at Port Glasgow in 1896 (*Ann. Scot. Nat. Hist.,* 1896: 250). "In 1906 one of these Bottle-nosed Whales, fourteen feet in length, strayed as far up the river as Renfrew, where it was caught and sold to the proprietors of the Scottish Zoo for £10" (*Glasgow Herald,* 20th February 1914). One was stranded at Port Glasgow in November 1948 (Dr. F.C. Fraser, *personal communication*). A Bottle-nosed Whale came ashore near Gourock Pier on 15th September 1957; it got refloated on the rising tide, but later was washed ashore dead at Lunderston Bay (*Gourock Times,* 20th September 1957). One was washed ashore dead near Gourock Pier on 9th October 1965 (*Gourock Times,* 15th October 1965). As recently as 3rd October this year (1972) a whale, ultimately identified as a Bottle-nosed Whale, was reported in Victoria Harbour, Greenock, where it was eventually caught and towed out to Loch Long and released (*Glasgow Herald,* 4th October 1972); this may well have been the same Bottle-nosed Whale which was washed ashore dead

two days later at Kilcreggan. Over the years there have been several other Renfrewshire records of stranded whales which were destroyed before they could be identified; these also were very probably Bottle-nosed.

(NS 17 27 *37 47* 16 -- -- -- -- -- -- -- -- -- -- -- -- --)

WHITE WHALE *Delphinapterus leucas* (Pallas, 1776)

A White Whale was recorded in Gourock Bay during the late summer of 1964. It was repeatedly seen in the stretch of water just off-shore from the Clubhouse of the Royal Gourock Yacht Club, and was present for the greater part of August and September (see *Gourock Times,* 9th October 1964). During the summer it appears to have been seen by virtually every member of the Yacht Club, and it was certainly the event of the season. It appeared to be reasonably tame, was often closely approached by small boats, and on several occasions was seen rubbing itself on the sand in shallow water. It was repeatedly seen by many careful observers, a full description was taken at the time, including the lack of any dorsal fin, and the identification was established beyond all doubt; the last time it appears to have been seen was on 26th September 1964. This is a most unusual record, for many details of which we are indebted to Dr. John Cleat, Commodore of the Royal Gourock Yacht Club.

Another White Whale was seen in Loch Long near Arrochar on 15th November 1965 (Dr. F.C. Fraser, *personal communication*), and in Loch Goil and Loch Long in November 1965 (see *Scottish Fisheries Bulletin,* No. 25, July 1966). This may well have been the same individual as the Gourock White Whale.

(NS 17 27 -- -- -- -- -- -- -- -- -- -- -- -- -- -- --)

PORPOISE *Phocoena phocoena* (Linnaeus, 1758)

At one time the Porpoise was extremely common in Clyde waters, and was commonly seen in the sea just off the Renfrewshire shores, in particular from Wemyss Bay to Gourock. It is nothing like so common now as it was twenty-five years ago, presumably owing to increasing pollution of the river, but some can still be seen fairly regularly.

The *New Statistical Account* (Volume 7, page 162, 1845) said "Delphinus Phocaena and orca are said to have been seen in the White Cart in pursuit of fish", and Malloch and Hall (1915) record that one was seen in the White Cart at Paisley in October 1906. In July 1946 Dr. Gibson and Mr. John McKim, at that time Secretary of our Society, saw several Porpoises as far up the river Clyde as Erskine Ferry, but as Gibson wrote at the time "if contamination of the river continues at the present rate, it is unlikely that anyone will ever see this again" (Gibson,

1946). We can only hope that, with the Herculean efforts being carried out by the Clyde River Purification Board, this gloomy prophesy will turn out to be inaccurate.

(NS 17 27 37 *47* 16 -- -- -- -- -- -- -- -- -- -- -- -- -- --)

WHITE-BEAKED DOLPHIN *Lagenorhynchus albirostris* Gray, 1846

The White-Beaked Dolphin is commonly seen in the Clyde, and at some seasons of the year is nearly as common as the Porpoise. It is certainly the cetacean most commonly seen jumping in Clyde waters. It is often seen jumping in mid-channel, and we have many personal records seen from the Gourock-Dunoon ferry. We also have several records of White-beaked Dolphins seen jumping not far off-shore from Wemyss Bay, but we know of no specimen having been stranded on Renfrewshire shores. Although this dolphin occurs so commonly in the Clyde there are in fact relatively few Clyde strandings on record.

(NS 17 27 -- -- 16 -- -- -- -- -- -- -- -- -- -- -- -- --)

KILLER *Orcinus orca* (Linnaeus, 1758)

In the *New Statistical Account* for Paisley parish "Delphinus orca" is "said to have been seen in the White Cart in pursuit of fish" (Volume 7, page 162, 1845). This is a remarkable statement. Nowadays the Killer is well-known in the Clyde sea area, and a century ago may have been even more common. Presumably the less polluted river Clyde of the early 19th century would have permitted the Killer to ascend high up the estuary but, although not impossible, we gravely doubt that Killers would have entered a river such as the White Cart.

PILOT WHALE *Globicephala melaena* (Traill, 1809)

In the *New Statistical Account* for Renfrewshire (Volume 7, pages 548-549, 1845) "Delphinus melas" is included in a "list of the principal whales and fishes found in the Clyde, and its frith or estuary". We feel we should draw attention to this statement since it is included in the Renfrewshire volume of the *New Statistical Account,* but it is extremely unlikely that it was meant to refer in any way to Renfrewshire.

OTHER MAMMALS

Prehistoric and Early Historic:

Remains of several other species of mammals have been found at various sites throughout the Clyde area, sometimes quite close to the Renfrewshire border, but not as yet within Renfrewshire itself. These include the MAMMOTH, the MOOSE or ELK, the

REINDEER, and the BEAVER. Moreover, bones of some mammals, eg: Wild Cat, Red Deer and Roe Deer, found in archaeological excavations indicate that races of these animals, much larger than these we know today, formerly inhabited the Clyde area.

Professor Ritchie (1920) considered that all these creatures, and others such as the LEMMING, the BROWN BEAR, and possibly even the LYNX, roamed widely throughout lowland Scotland, including that part which we now call Renfrewshire, in ancient times. This is very probably true, but until remains are actually found within the county we cannot admit them to a Renfrewshire list.

Escapes:

Wandering pets and other animals escaped from captivity are usually easily recognised, but these have no real place in our county fauna. Exotic escapes do turn up from time to time, but nowadays the escaped pet most commonly found is the GOLDEN HAMSTER, although occasional specimens of the COMMON HAMSTER are also found. The GUINEA PIG, which used to be found so often, now seems to have fallen out of favour as a pet. Although some individuals may live in the wild state for a considerable time, the chances of these, or other escaped pets, forming a feral breeding population seem to us to be nil. It is appreciated that the margin between these and some other mammals already included in the Renfrewshire list is a fine one, but a line has to be drawn somewhere.

No account of the mammals of Renfrewshire can be considered complete without making at least a passing reference to the 'Paisley Kangaroo', even on grounds of sentiment alone! Towards the end of last century the Marquess of Bute established a breeding colony of KANGAROOS at Mount Stuart on the Island of Bute (see *Trans. Buteshire Nat. Hist. Soc.*, 18: 18-19). This was a considerable success and Lord Bute gave presents of Kangaroos to several places throughout the Clyde area; there were two in a public park in Paisley. One of these died fairly soon, but the other gained its freedom and lived in the semi-wild state in the park for many years. It seemed to stand the winters very well (as did the Kangaroos on Bute), and appeared to thrive on a remarkably mixed diet given to it by local children. Many elderly naturalists, who as small children were often taken to see it by their parents, long remembered it with affection. Legend says that it died on the same day as Queen Victoria.

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Dr. J.A. Gibson, Foremount House, Kilbarchan, Renfrewshire.
Mr. James Anderson, 25 Glentyan Avenue, Kilbarchan, Renfrewshire.

THE WATER-HOGLOUSE (Asellus) IN WEST SCOTLAND

By J.D. Hamilton
Department of Biology, Paisley College of Technology

Of the three British species of this isopod crustacean, one (*Asellus cavaticus* Schiodte) is found only in caves and wells in southern England and Wales. The other two, *Asellus aquaticus* (L.) and *Asellus meridianus* Racovitza, are widely distributed in most types of freshwater throughout Britain with the exception of some Western Isles and parts of northern Scotland.

The detailed distribution of these two species in Scotland has been recorded by Warwick (1959) and Williams (1962a) has attempted to explain their distributions in Britain and Europe. Williams *(op. cit.)* noted that both species may be present in the one body of freshwater although similar localities in the same region may contain only one, or other, or neither of the species. Warwick *(op. cit.)* found that *A. aquaticus* was distributed more widely than *A. meridianus* but that both species did not occur together at any of the sites he visited in central Scotland. What is known of the distribution of the two species in west Scotland appears to confirm Warwick's findings. *A. aquaticus* has been found in many rivers, lochs, reservoirs, ponds and canals in the region but at the one site (see Record below) where *A. meridianus* is known to occur the former species is absent.

A. aquaticus *A. meridianus*

Fig. 1

Further studies by Williams (1962b, 1963) suggest that the two species occupy the same ecological niche and may be in competition. In order to test these suggestions a more detailed knowledge of the ecological needs of the two species and their distribution is needed. I would therefore be pleased to receive any records of the occurrences of *Asellus spp.* in west Scotland. The two species are fairly easily distinguished by the pattern of pigmentation on the upper surface of the head (See Fig. 1). Living or preserved specimens would also be welcome.

Record:

Asellus meridianus Racovitza was taken in class-work samples from the Old Patrick Water (NS 436 592) immediately downstream from Caplaw Dam, Renfrewshire on 18.10.68 and identified by Mr. David Martin. Further specimens were obtained later from Caplaw Dam itself but no specimen of *A. aquaticus* (L.) was found at either site.

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THE RETURN OF THE FOX TO KINTYRE

By DUNCAN COLVILLE and J.A. GIBSON
Kintyre Antiquarian and Natural History Society

It may not be widely realised that some twenty-five years ago Foxes returned to the peninsula of Kintyre, from where they had been absent for over one hundred years. As might have been expected this event caused considerable local activity, and at times rancour, especially amongst the farming community, so it is hoped that these historical notes on this interesting occurrence may be of some value.

Alan Macintyre:

Over one hundred and fifty years ago the Fox was extremely common in Kintyre, but it was ultimately exterminated by Alan Macintyre (1745-1840), district fox-hunter of Kintyre from about 1770 until not long before the time of his death at the age of 95. Alan Macintyre was the great-grandfather of the well-known gamekeeper and naturalist, Dugald Macintyre. Alan (Fear-na-Shionach) relied solely on his long gun and his pack of dogs in his pursuit of the Fox, and many of his exploits became legendary. He had one famous foxhound, Gasgeach, which followed a Fox from Glen Barr to Skipness "where at late evening of the day of the hunt a shepherd saw two dark objects in a field behind Skipness Castle. The movements of the two objects invited the shepherd's attention, and he found them to be an utterly exhausted fox, and an equally exhausted hound. When the fox dragged itself a few yards, the hound did the same. The shepherd killed the fox and carried home the exhausted hound in his arms. Alan had followed the chase for miles, but finally lost all trace of the pack. His terriers dribbled home, some on the evening of the day of the hunt and some next day. The famous hound Gasgeach was lost to his master for a fortnight, however, when news filtered through to Glen Barr that a big hound had been found at Skipness. That hunt is really the foundation of many stories of long Highland hunts after foxes, and it must have covered over thirty miles".

"Another long hunt, quite twenty-five miles, was from Carradale Glen to near the Mull of Kintyre, the hunted fox being caught by Gasgeach, where the golf bridge now stands near Machrihanish".

First Gamekeepers:

In 1842 the first gamekeepers were appointed in Kintyre.

Kintyre's first head-gamekeeper was from the Duke of Argyll's staff at Inveraray, and his name was Lothian. Alan Macintyre's grandson Dugald was appointed one of the first under-keepers and later became head-gamekeeper, but by that time much of the gamekeepers' work had been done for them for Alan had exterminated the Fox long before. Alan Macintyre was given a pension of twenty-five pounds per annum from the Duke for exterminating the old breed of Foxes in Kintyre, but legends of how he actually did kill the last Kintyre Fox are without foundation. Alan did not himself know when he had actually killed the last Fox.

Forestry at Carradale:

From then on Kintyre remained free from Foxes, apart from occasional stragglers which crossed the narrow isthmus down from Tarbert, but these were quickly trapped or shot. During the time of the last war, however, things changed. In 1936 the Forestry Commission acquired the Carradale estate, and commenced tree-planting in earnest during the late 1930s; most 'keepers and trappers were away during the war and by 1948 the Carradale branch of the National Farmers Union was complaining that it seemed to be "more plantations, more foxes in Carradale". The farmers complained that the Forestry Commission plantations gave good cover for Foxes coming down from Knapdale, where Foxes were common, and thereby gave them a chance to get established. The farmers regarded the increase of Foxes as a serious threat, and offered a reward of one pound for each adult Fox and ten shillings for each cub (*Campbeltown Courier,* 7th February 1948). The money for this reward was raised by a levy of 2/6d per farm and 2/6d per hundred head of sheep. The Forestry Commission did take some steps against the Foxes and the *Campbeltown Courier* recorded on 8th May 1948 that the previous week the Forestry Commission trappers had killed one adult and five cubs. By 1952, however, the population of Foxes in the Carradale plantations had increased to such an extent that the reward was increased to five pounds for an adult Fox and half this sum for cubs (*Campbeltown Courier,* 7th February 1952). This action seems to have been reasonably successful, for in 1952 rewards were paid out for a total of fifteen Foxes and in 1953 for a total of sixty-one Foxes. By this time, however, the Fox had pushed further down Kintyre and was recorded from Southend by 1953.

Kintyre Fox Hunting Society:

Finally the Kintyre Fox Hunting Society was formed in 1955, and rewards were offered of one pound for every adult Fox, and five shillings for every cub, killed anywhere throughout Kintyre

(*Campbeltown Courier,* 12th May 1955). The Society did not employ a foxhunter, and it was hoped that results would be obtained by offering these rewards. In 1956 the rewards were increased to two pounds for an adult Fox and ten shillings for a cub, at which level they have remained ever since. In the first eighteen months members of the Society killed 77 adults and 117 cubs, an indication of the hold which the Fox had regained on the peninsula. Representations were made to the Forestry Commission by the various farming bodies concerned, and this did lead to an intensification of activity against the Fox.

Through the courtesy of Mr. E. Farrell, treasurer of the Kintyre Fox Hunting Society, we are able to give the following recent figures for Fox kills in Kintyre. The Society's financial year runs from 1st April to 31st March and the following figures are based on the rewards paid.

1963/64	38 adults and 24 cubs
1964/65	31 adults and 23 cubs
1965/66	43 adults and 17 cubs
1966/67	60 adults and 32 cubs
1967/68	53 adults and 44 cubs
1968/69	98 adults and 40 cubs
1969/70	81 adults and 43 cubs
1970/71	57 adults and 12 cubs
1971/72	42 adults and 21 cubs

Present Day:

Nevertheless, despite all this activity the Fox now remains reasonably common and is again widely distributed throughout the Kintyre peninsula. It is likely that it will always remain so, for parts of Kintyre are now thickly wooded, providing excellent cover, and not even the return of Alan Macintyre with his long Spanish gun and his terriers would be likely to change the position much.

It is worth while drawing attention to an excellent article in *Chambers Journal* for August 1953 by the late Mr. Dugald Macintyre about his great-grandfather, Alan. This gives a great deal of local history and records some of Alan's legendary hunts after Foxes; it should be read by anyone even remotely interested in the subject (also see *Campbeltown Courier,* 21st January 1922).

Mr. Duncan Colville, Kilgour, Machrihanish, by Campbeltown.
Dr. J.A. Gibson, Foremount House, Kilbarchan, Renfrewshire.

ZOOLOGICAL NOTES

MOUNTAIN HARE ON THE ISLAND OF BUTE

In my recent paper on the mammals of the Island of Bute (*Trans. Buteshire Nat. Hist. Soc.*, 18: 5-20) I wrote that there were no records of Mountain Hares on Bute and that Professor Ritchie's map in his *Animal Life in Scotland* (1920), which showed the Mountain Hare as indigenous to Bute, must have been incorrect. There are certainly no Mountain Hares on Bute nowadays, nor have there been any within the recollection of any living naturalist, and it was certainly incorrect to consider the Mountain Hare as indigenous to the island. Nevertheless there is at least one authentic earlier record of the Mountain Hare on the Island of Bute. Recently when re-reading John Colquhoun's *Sporting Days* (1866), in the chapter on 'Natural History and Sport of Bute' I came across the following reference on page 150: "Alpine hares have been introduced from Argyllshire, but I have never yet moved one, although my watcher saw a couple at different times last winter, after they had donned the snow-white fur". I regret to say that I missed this reference during my previous reading, but in all fairness one should state that it occurs not in Colquhoun's section on mammals but as an isolated reference in the middle of his section on birds, so there is some excuse; this reference was also overlooked by all previous writers on Clyde mammals.

As far as I know this is the only reference to Mountain Hares on the Island of Bute, but in the *Scottish Naturalist* for 1920, page 14, Mr. John Robertson gives a note on a Mountain Hare seen on the shore near Ascog Bay. This, however, does not refer to the well-known Bay on Bute and is a misprint, or alternative spelling, for Asgog Bay at Ardlamont, Argyll, near the entrance to Loch Fyne. Robertson actually makes the locality fairly clear in the text. Since I have heard this mentioned as a reference to Bute it seems important to draw attention to the record simply to dismiss it. J.A. Gibson

SPOONBILL IN DUNBARTONSHIRE AND WEST STIRLINGSHIRE

Just after mid-day on 13th June 1971, I observed a Spoonbill in company with a small group of Herons at Wards Low Ground near the Endrick Mouth, Dunbartonshire. The conspicuous crest and all-white primaries, the black legs and yellow tip to the black spatulate bill, identified the bird as an adult. The Spoonbill was seen later in the afternoon by T. Daniels, who also noted a darkish patch on the throat. Throughout the afternoon it was alternately dozing and preening. In the evening, C.

Placido watched the Spoonbill feeding in shallow water, characteristically sweeping its immersed bill-tip from side to side. The water level of the immediate locality is controlled by means of a sluice gate, allowing open water for wildfowl in winter and rough cattle grazing interspersed with muddy lagoons during the summer.

Despite several reports from local people, the Spoonbill was not seen again by any of the observers until 29th June, when C.P. and I found it perched in a hawthorn bush close by the river mouth. From there it flew to the heronry on the West Stirlingshire side of the river. The Spoonbill was also seen by R.G. Caldow and D.L. Clugston on 1st July and Prof. Meiklejohn *et al.* on 3rd July.

There is at least one previous record for Dunbartonshire - a single bird at Ardmore Point on 4th November 1970 (*Scottish Birds*, 6: 356). J. Mitchell

GUILLEMOTS ON LOCH LOMOND

On Saturday 18th September 1971, Guillemots were observed on Loch Lomond by a number of people. The species was widely recorded over the loch but sightings were usually of single birds. The following day, Sunday 19th, a dead bird of this species was found by J. Pairman on the shore at Balmaha, Stirlingshire. The bird was sent for post mortem examination to Monks Wood Experimental Station and the following information was received from J.F. Parslow *(in litt.)*: The bird was an immature, probably late fledged, and the examination gave no indication of the cause of death. It was fairly thin and had no obvious subcutaneous or abdominal fat. The liver was small and unusual in that it was black and full of blood.

A cursory examination of the liver revealed that the levels of PCB and DDE found were indicative of normal background concentrations of these compounds in the livers of Guillemots.

The species has been recorded on previous occasions on Loch Lomond (J. Lumsden, *A Guide to the Natural History of Loch Lomond and Neighbourhood*, Glasgow, 1895. *Scot. Birds*, 6: 98; 6: 146), but these have usually been associated in some way with severe westerly gales. The reasons for the occurrence of the species in 1971 are not known and there were no reports of severe weather conditions on the west coast either immediately before or after the birds were first noted. C. Placido

INCREASE OF ADDERS ON HOLY ISLAND, ARRAN

When Thomas Pennant visited Holy Island (which he called the Lamlash Isle) during his tour in Scotland in 1772 he said

"the walk is far from agreeable, as the island is greatly infested with vipers". Oddly enough this appears to be one of the few references to Adders on Holy Island, and Adders were certainly not mentioned from Holy Island in either the *Old* or the *New Statistical Accounts*.

In my paper on the reptiles and amphibians of the Island of Arran (*Trans. Buteshire Nat. Hist. Soc.*, 17: 69-72) I said "I was shown a specimen taken on Holy Island in 1947, but this is regarded locally as unusual", and omitted all reference to Pennant's earlier statement which I regarded as no longer relevant. Certainly in many years of visiting Holy Island I had not previously come across any Adders on the island, but I am now informed by the Universities Federation for Animal Welfare, the organisation which now owns Holy Island, that Adders "are present in certain areas" (see U.F.A.W. *Annual Report* 1971-72, page 34). Even allowing for greatly increased observation throughout Holy Island within recent years, this clearly represents an increase in status, and as such I feel is worth putting on record.

J.A. Gibson

STATUS OF THE LONG-FINNED TUNNY IN THE CLYDE

In a recent excellent note to the *Glasgow Naturalist* (Volume 18, page 574, 1971) Dr. D.L. Burkel gives an admirable list of records of rare fish recently recorded from the Clyde sea area. This includes a specimen of the Long-finned Tunny taken near Furnace, Loch Fyne, on 28th February 1968. Dr. Burkel suggests that this may be the first record of the Long-finned Tunny from the Clyde area, since he notes that it was not included in the list of Clyde marine fish prepared by T.B. Bagenal (*Fauna of the Clyde Sea Area: Fishes*, 1965). This, however, is not the case, and there are in fact two previous Clyde records of the Long-finned Tunny which were apparently overlooked by Bagenal: one taken in Loch Gilp about 4th November 1932, and another taken in the Holy Loch on 20th June 1934. These records, which were published in the *Scottish Naturalist* for 1933 pages 26 and 85, and 1934 page 128, are extremely important since they were only the second and third records of the Long-finned Tunny from Scottish waters, so it is particularly unfortunate that they were omitted from Bagenal's list. They were, however, included by D.W. Tucker (1955) in his survey of the Long-finned Tunny in the British Seas (*Nature*, 175: 174). The specimen recorded by Dr. Burkel, therefore, would appear to be the third Clyde record. These records of the Long-finned Tunny are of particular interest to members of the Renfrewshire Natural History Society, since the 1934 specimen was found and identified by the Johnstone naturalist, Thomas Malloch, for so long a stalwart of the Society.

J.A. Gibson

SOCIETY NEWS

RENFREWSHIRE NATURAL HISTORY SOCIETY

As part of its 125th Anniversary celebrations, the Renfrewshire Natural History Society is sponsoring the third Morris Young Memorial Lecture, which will be given on Friday 5th January 1973 at 7.30 p.m. in the Lecture Hall of Paisley Museum. The Lecture will be given by Mr. George Waterston, O.B.E., F.R.S.E., who will speak on "A Naturalist in Arctic Canada".

When Mr. Waterston retired earlier this year from the post of Scottish Director of the R.S.P.B., he was immediately commissioned by the Canadian Wildlife Service to carry out an ecological survey in the high arctic islands of Canada during summer 1972. His remit was to make an assessment of wildlife and vegetation in the light of oil drilling developments taking place on Ellesmere and Axel Heiberg Islands.

This is the first lecture on the subject which Mr. Waterston is giving after his return from the Arctic, and at which many of his results will be announced. During the expedition Mr. Waterston took over 1200 magnificent colour photographs of the wildlife and scenery, and his lecture will be illustrated with a large series of these colour slides.

This third Morris Young Lecture is an open meeting of the Society, and all members of the public will be welcome.

ROYAL SOCIETY FOR THE PROTECTION OF BIRDS

Film Show: This winter the Royal Society for the Protection of Birds is sponsoring a series of natural history film shows in several towns throughout the West of Scotland. The Paisley film show will be held in the Brough Hall of Paisley College of Technology on Thursday 15th February 1973, commencing at 7.30 p.m. The films to be shown include 'High Life of the Rook', 'Adventure Has Wings', 'Avocets Return' and 'Wilderness is not a Place'. Tickets - Adults 30p, Children 20p, can be obtained from Messrs J.D. Cuthbertson, Gilmour Street, Paisley, the Travel Agency in Lewis Ltd., Argyll Street, Glasgow, or direct from the R.S.P.B. Renfrewshire Representative, Dr. J.A. Gibson, Foremount House, Kilbarchan.

Beached Bird Survey: The Clyde Area has now been fairly well covered with counters for the Beached Bird Survey, but gaps still exist, particularly in the Loch Fyne, Cowal and Gareloch areas. Anyone who feels able to participate in the Beached Bird Survey should contact R.S.P.B. Headquarters, 17 Regent Terrace,

Edinburgh, EH7 5BN, or the local organiser, Dr. J.A. Gibson, Foremount House, Kilbarchan.

SCOTTISH WILDLIFE TRUST

The Clyde Area Branch of the Scottish Wildlife Trust is holding a public meeting and the following joint meetings in conjunction with Natural History Societies throughout the West of Scotland:

Public Meeting:

Glasgow: Thursday 23rd November 1972 at 7.30 p.m., Room 1, McCance Building, Strathclyde University. Dr. J. Morton Boyd, Scottish Director of the Nature Conservancy, will speak on "Conservation - The Way Ahead". All members of the public will be welcome.

Joint Meetings:

Glasgow: Tuesday 9th January 1973 at 7.30 p.m., in Room 1, McCance Building, Strathclyde University. Professor W.W. Fletcher on "Pesticides and Conservation". Joint meeting with the Andersonian Naturalists of Glasgow.

Hamilton: Friday 19th January 1973 at 7.30 p.m., Burgh Library, Cadzow Street, Hamilton. Dr. Burge on "Plant Ecology". Joint meeting with the Hamilton Natural History Society.

Gourock: Wednesday 21st February 1973 at 8 p.m., Royal Gourock Yacht Club. Mr. J. Ian Waddington on "The River Must Live". Joint meeting with Renfrewshire Natural History Society.

Campbeltown: Friday 23rd February 1973 at 7.30 p.m., Town Hall, Campbeltown. Dr. J.A. Gibson on "The Seals, Whales and Dolphins of the Clyde Area". Joint meeting with Kintyre Antiquarian and Natural History Society.

Paisley: Thursday 1st March 1973 at 7.30 p.m., Societies' Room, Department of Biology, Paisley College of Technology. Mr. David W. Mackay on "Some Biological Aspects of the Clyde Estuary". Joint meeting with Renfrewshire Natural History Society.

Helensburgh: Monday 5th March 1973 at 7.30 p.m., Victoria Hall, Sinclair Street, Helensburgh. Mr. Bernard Gilchrist on "Reserves Old and New". Joint meeting with West Dunbarton Natural History Society.

Any naturalists who are not already members of the Trust or of the jointly sponsoring Societies will nevertheless receive a warm welcome at any of these meetings.

GLASGOW SPELAEOLOGICAL SOCIETY

The Glasgow Spelaeological Society was formed in 1964 to explore, study and record all aspects of caves and mines in the West of Scotland, though in fact members get underground in various parts of Britain and Ireland. Besides recording nearly 100 mines and a few caves, members have undertaken studies in particular areas. The caves under Culzean Castle have been surveyed and some archaeological remains uncovered; a study has been made of limestone mines and kilns in Ayrshire, and a great deal of work has been done on the history of the lead mines around Leadhills and Wanlockhead. In terms of the natural sciences, water samples have been collected from old mines and analysed; the stunted growths of Hart's Tongue Fern have been noted in cave threshholds as far apart as Durness and Southern Ireland, and studies have been carried out on fungi, invertebrates and hibernating bats.

Work on bats is currently being pursued, and not only have some interesting bat roosts been found in old mines but one species - Natterer's Bat - not previously recorded in Scotland this century, has been discovered. The Society has co-operated with the Scottish Wildlife Trust in establishing an underground bat reserve to protect this species and some others. The fly *Leria serrata*, which is also found underground, and a fungal growth associated with it are also being studied. Recently microfauna of the genera *Collembola* and *Cyclops* have been found in an old stone mine and specimens are being specifically identified.

All this offers fresh fields of research for the naturalist, and anyone interested can obtain further details from the Secretary: Mr. C. Placido, Eastmost Cottage, Milton of Buchanan, Drymen, Glasgow, G63 OJE.

BUTESHIRE NATURAL HISTORY SOCIETY

Any naturalists visiting Rothesay will be made welcome at meetings of the Buteshire Natural History Society, which are held in the Bute Museum on Tuesday evenings at 7.45 p.m.

Forthcoming meetings include:

19th December - Bird Conservation in Scotland - Mr. Frank Hamilton, R.S.P.B. Regional Officer for Scotland.

23rd January - Underwater Life as seen by a Diver - Dr. Peter Barnett, Scottish Marine Laboratory.

6th February - The Ice Age and our Scenery - Mr. J.E. Dewar, Rothesay Academy.

REQUESTS FOR INFORMATION

OTTERS

The Hon. Vincent Weir, Brock House, Great Chesterford, Saffron Walden, Essex, is anxious to obtain Otter spraints from any part of the country. Since the Otter is widely distributed throughout the West of Scotland it is hoped that many naturalists may be able to help Mr. Weir in his work. Anyone in a position to collect Otter spraints should contact Mr. Weir in the first instance. Transport of the spraints may provide some difficulty, but Mr. Weir can probably arrange for this to be done locally from Glasgow.

FERAL MINK

Mr. J.H. Cuthbert of the Department of Agriculture and Fisheries for Scotland, East Craigs, Edinburgh EH12 8NJ, is collecting information on the distribution of Feral Mink throughout the country, and will be extremely glad to receive any information from the West of Scotland. Feral Mink are now breeding in every county in Scotland but the detailed distribution, particularly throughout some of the larger counties, is little known. Mr. Cuthbert will be particularly glad to hear about any Mink farms which were in existence before January 1963, when it became necessary to obtain a licence to keep Mink. Anyone possessing information should write direct to Mr. Cuthbert.

BIOLOGICAL STUDIES IN THE CLYDE ESTUARY

The Firth of Clyde and its connecting sea lochs have attracted much attention from biologists and naturalists, and many accounts have been published of the fauna and flora over a long period of years. It is surprising, therefore, to find that the estuary from Greenock upwards has been largely neglected. This may have been due to some assumption that the effects of domestic and industrial pollution and other forms of human interference have rendered it "uninteresting". Although such influences have been considerable this assumption is, however, far from the truth, as for example the large bird flocks on the mud flats readily demonstrate. Furthermore, the effects of human activity are in themselves a vital subject for study at the present time.

Staff and students at Paisley College of Technology are now collaborating with staff members of the Clyde River Purification Board, the Nature Conservancy and others in studying the plants and animals of the estuary and will welcome any observations or records relating to the area, which may be sent to Dr. J.C. Smyth, Department of Biology, Paisley College of Technology, High Street, Paisley.

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THE RENFREWSHIRE NATURAL HISTORY SOCIETY

Founded 1847

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Lord Lieutenant of the County of Renfrewshire

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J. Ian Waddington Thomas Yeudall

The Renfrewshire Natural History Society is the oldest Natural History and Antiquarian society in the West of Scotland. It was founded by the late Morris Young F.E.S. on 18th December 1847, and is now one of the oldest County Learned Societies in Great Britain.

The Society deals with all aspects of the history, natural history, archaeology and antiquities of the county of Renfrewshire, and its general interests extend over the whole of the West of Scotland. Either directly or through members it is affiliated to most major natural history and archaeological organisations in the British Isles.

The Society meets regularly for lectures and discussions during the winter months, and during summer field meetings are arranged to places of natural history or archaeological interest. The Society publishes the *Western Naturalist*, periodical *Proceedings*, and a regular newsletter. All publications, including the *Western Naturalist*, are sent to members free of charge.

The annual subscription for full membership is one pound. Over 65, juniors, students, and family members: 25p.

Applications for membership should be made to the Secretary.

THE WESTERN NATURALIST

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